Smithsonian

September 1996

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The Shier quints, part of the boom in multiple births (p. 30)

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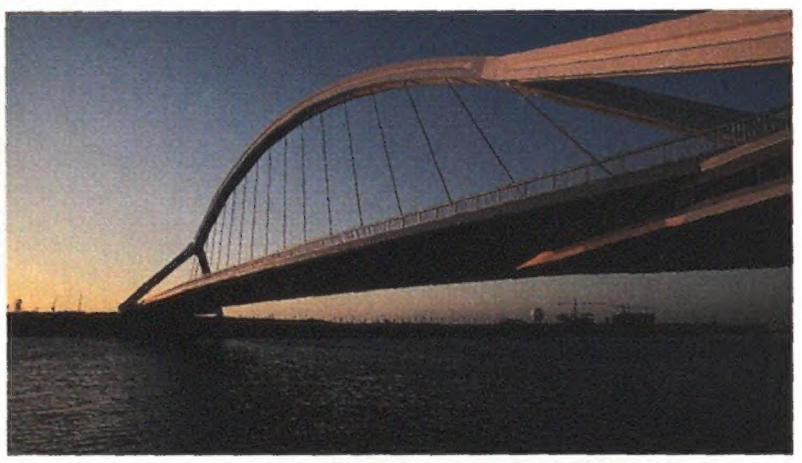

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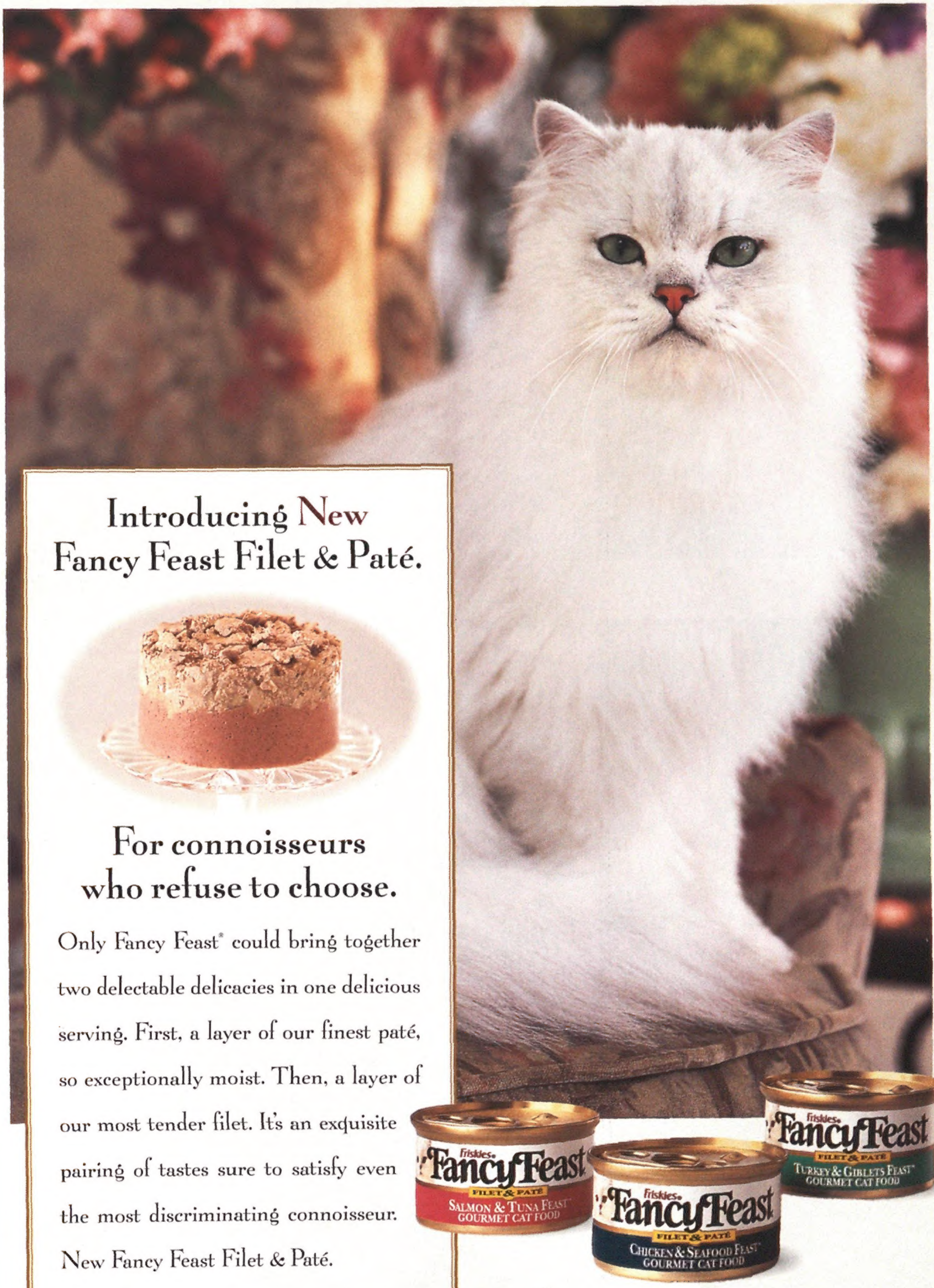

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Smithsonian *departments*

September 1996
Volume 27, Number 6

Cover

Cover:
At 5 months, the Shiers (from bottom to top: Sarah, Joshua, Rachel, Hannah and Jonathan) still take their quintuplet status lying down. They had one of the longest gestation periods known for quints, 33 weeks, and together weighed 18 lbs. 7 ozs. at birth (p. 30).
Photograph by Paula Lerner

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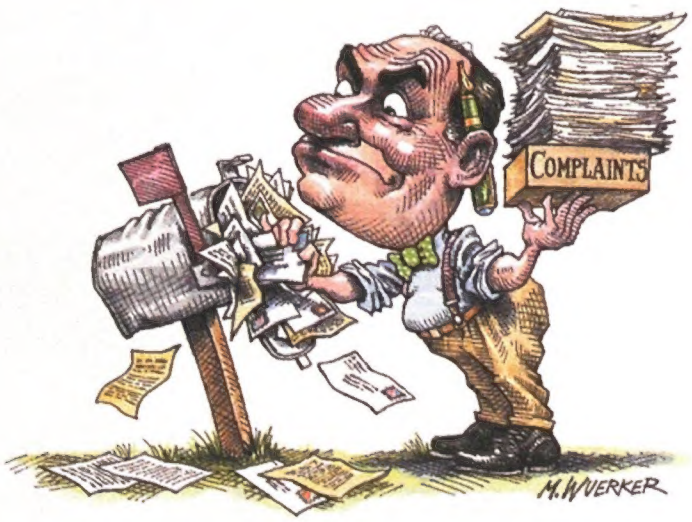

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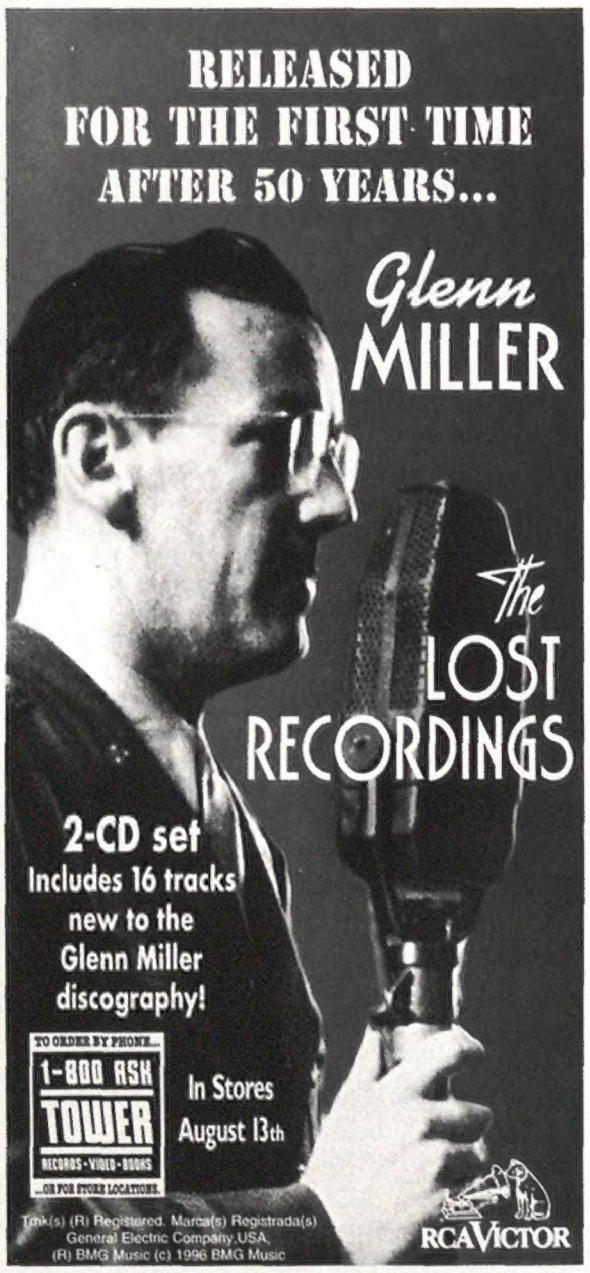

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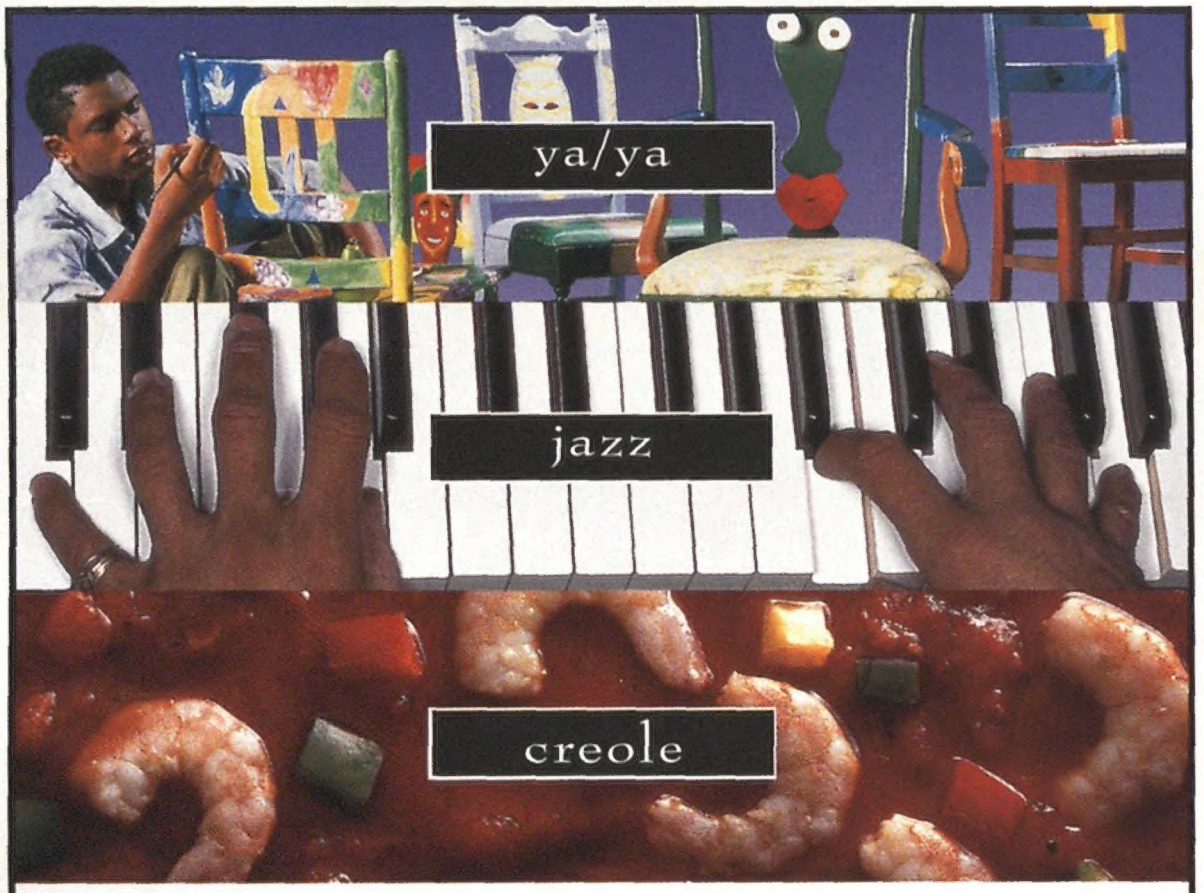

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Secretary Heyman's comments

Smithsonian Perspectives

Coins from James Smithson's bequest created the Institution; on our anniversary, commemorative coins from the U.S. Mint will help it to continue

The Smithsonian has benefited enormously from its association with the federal government. The Congressional initiative in 1836 to send an agent to London to lay claim to the bequest of James Smithson was only the first instance of federal support for a little understood institution that was to bear his name. Since then, the federal government has extended to the Smithsonian appropriations, collections, grants and contracts, cooperative enterprises and a lot of guidance.

On February 7, we had the good fortune to unveil with the U.S. Postal Service our 150th-anniversary commemorative stamp. This is actually the third Smithsonian stamp, so it carries forth a tradition of cooperation with the Postal Service—a relationship now enhanced by the opening of our National Postal Museum here in Washington.

In a similar vein, we have been working with the U.S. Mint, Congress, the Secretary of the Treasury, the Citizens Advisory Committee on Commemorative Coins and the Commission of Fine Arts—to name just a few of the participants—to mint some truly spectacular coins commemorating our 150th anniversary. The long process of authorization, design and approval having finally been completed, we were proud to present the finished products at our celebration on August 10.

As it turns out, gold coins were an integral part of the Smithsonian's origins. With authorization from Congress, President Andrew Jackson appointed the distinguished Pennsylvania lawyer, financier and former Secretary of State, Richard Rush, to prosecute the United States' claim to Smithson's bequest. In May 1838, the British Chancery Court awarded Smithson's estate to the United States. Rush promptly converted the proceeds of the estate into 104,960 new British gold sovereigns on behalf of the U.S. Government. That July, Rush set out for New York City with 11 boxes of gold sovereigns aboard the USS *Mediator*. Because British currency was not legal tender in the United States, the U.S. Mint in Philadelphia was ordered to melt down the sovereigns and remint them as Goddess of Liberty ten-dollar gold coins. The recoined bequest was worth precisely $508,318.46 at that time. Less than ten years later, the interest on the bequest, compounded at 6 percent, was sufficient to pay for the construction of the Smithsonian's first building, our beloved Castle.

So we see a special meaning in the minting of commemorative coins in this 150th-anniversary year. We were fortunate to engage some of the U.S. Mint's finest designer-engravers of coinage for this project. The obverse of the gold five-dollar coin, designed by Alfred F. Maletsky, features a classical bust of James Smithson. On the reverse, designed by T. James Ferrell, is a superbly executed Smithsonian sunburst, polished to a mirror finish on the proof coin. The obverse of the silver dollar, designed by Thomas D. Rogers, features an image of the Smithsonian Castle adapted from a fanciful lithograph published by Edward Sachse & Co., c. 1855-60. On the reverse of the silver coin is a design by John Mercanti, an allegorical figure carrying the torch of knowledge. This is an adaptation of the Augustus Saint-Gaudens design on the Smithsonian's Langley Medal. Working with the Mint has been a special pleasure and an outstanding example of the benefits we enjoy as a partner with the federal government.

These unique coins are bound to appeal to a wide audience beyond the typically enthusiastic numismatic community. They are being offered for sale by the U.S. Mint (call 1-800-USA-MINT), and through our own mail-order catalog and in our museum shops. The number of coins is finite and they may well sell out before the holiday season. The Smithsonian is happily a beneficiary of the sales, earning $10 and $35 on the silver and gold coins, respectively. Fifteen percent of the revenues will be credited to the National Numismatic Collection at the Smithsonian, and the rest will support the Institution's educational outreach in this anniversary year.

I am certain that many members of the Smithsonian and readers of this magazine will want to participate in this unique offer and bring home a real symbol of the Smithsonian's history.

I. Michael Heyman

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Letters to the Editor

Dragonflies

I had just finished reading Richard Conniff's July article on dragonflies while commuting on the subway to my New York City office. As I waited for the light to change at the corner of Fifth Avenue and 48th Street, a blue-black dragonfly of considerable size flew by me at eye level. It weaved its way between two cabs as they all sped down Fifth.

It was a wonderful coincidence (my first dragonfly sighting in more than 30 years of living here)and further proof of the flying skills and adaptability of these extraordinary insects.

Joel M. Rudell
New York City, New York

I read the dragonfly story like a twelve-spot skimmer tearing through a cloud of skeeters, or mosquitoes as they're sometimes called. Odonata's style of hunting the pests gave rise to another Southern nickname for the winged wonders: skeeterhawks.

Steve Jones
Dahlonega, Georgia

Your cover caption misrepresented native spike-rush plants as weeds. Referring to any aquatic plant as a weed sends the wrong message to the public. Only a small fraction of these species are categorized as such since most are beneficial both commercially and ecologically. Rice, for example, the world's leading food plant, is an aquatic species.

Your article showed how dragonflies depend on aquatic vegetation for their survival. Because wetlands are under increased pressure from developers, it is important for people to understand the critical role of aquatic plants in freshwater and marine ecosystems.

Donald H. Les, PhD
Department of Ecology
and Evolutionary Biology
University of Connecticut
Storrs, Connecticut

Alexandre Dumas

Congratulations and thanks to Victoria Foote-Greenwell for her compelling piece on Alexandre Dumas. Moreover, thanks for giving me screen credit for *The Three Musketeers.*

My original beheading was shot on our largest soundstage with 150 of the strongest lights at the time—all projecting through fire-red gelatins. The scene was most effective. After the preview, which left the audience petrified, our movie censor board said that we must redo the scene.

When I need a good table in France I say, "*Je suis le metteur en scène* Les Trois Musketeers," which has opened many happy evenings for me. Your article has now brought back memories of the swashbuckling days of MGM.

George Sidney
Beverly Hills, California

Mr. Sidney directed Gene Kelly as D'Artagnan and Lana Turner as Lady DeWinter (at left, in the scene that censors killed for being "too gruesome") in the 1948 film adaptation of Dumas's legendary novel. Ed.

Another facet of Alexandre Dumas's life was that of the gastronome. He is responsible for *Le Grand Dictionnaire de la Cuisine,* and the food he describes is just as fascinating as the manner in which he describes it.

Patrick Wheeler
Sacramento, California

Gibson guitar

Thank you for Bruce Watson's article on the comeback of the Gibson Guitar Corporation. In 1963, I paid $50 for my first Gibson guitar, a used Les Paul Jr. Since then we have always had at least one Gibson in our family. As an aspiring musician, I felt that the Gibson on the peghead of my axe conferred a certain measure of legitimacy and hipness

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that, despite any talent I may have possessed, simply could not be acquired any other way. My old Les Paul Jr. has long since drifted away under a separate career of its own.

I realize that in the trade, the current crop of Les Pauls and other guitars crafted by Gibson may be considered replicas, but most of us pickers out here like to think of them as venerable—but living—extensions of the happy juncture of craftsmanship and music that transcends mere commerce.

Mickey Rouse
Beaumont, Texas

Having owned Gibson guitars and played professionally for many years (L-4 and L-5 orchestra guitars), I was pleased to learn that Gibson was being revived with emphasis on quality. I especially congratulate the decision of the new management for abiding by and proclaiming "Made in the U.S.A."

With the exception of Les Paul, all of the musicians mentioned in the article as playing Gibsons were either country-western or rock. For balance it would have been nice had you mentioned jazz guitarists Eddie Lang, Charlie Christian, Johnny Smith, Charlie Byrd and Kenny Burrell.

Finally, I cannot imagine any of the musicians I have known over these many years twirling their treasured guitars through the air or referring to them as "axes."

Earl Goggans
Scottsville, Virginia

Object at Hand

Another of the misadventures that bedeviled the first official airmail flights on May 15, 1918, occurred moments before Lieut. George Boyle took off in his "Jenny" (Curtiss JN-4) from Washington, D.C. for Philadelphia—flying south instead of north.

While President Woodrow Wilson, Mrs. Wilson and the scores of dignitaries waited for takeoff, the ground crew and Lieutenant Boyle made several futile attempts to fire up the engine of the biplane. Each time they turned the props, the engine briefly coughed and died. Capt. Ben Lipsner, who was at Washington's Potomac Park, was reportedly sitting in front of the Wilsons. He later wrote in *The Airmail: Jennies to Jets*, "I heard the President say to Mrs. Wilson, 'We are losing a lot of valuable time here.'" Then somebody remembered that the gas gauges registered in level flight. On the ground the plane sat at an angle. Perhaps the plane was out of gas.

Indeed, the tank was empty. No one had fueled the plane. All hands scurried to bring gas in small containers from a nearby hangar, and then, of course, the engine came to life.

David C. Frailey
Dallas, Texas

Rowing

In his article on rowing, William Lanouette mentions that professional rowers appeared on sports trading cards that came inside packs of cigarettes in the 1880s. The Allen & Gintner tobacco company, which issued the card for oarsman George Bubear (below), produced several different sets of cards. These included baseball players, "pugilists," billiard players, rifle shooters, wrestlers and pool players.

Thomas E. Weil jr.
McLean, Virginia

Mount Rainier

Your otherwise excellent article about Mount Rainier is in error about the acids of sulfur. Hydrogen sulfide, H_2S, is indeed the cause of the odor of rotten eggs, and it is a gas. It condenses at -77 degrees Fahrenheit, however, so it would not condense even at the peak of Mount Rainier.

H_2S is somewhat soluble in water but retains its identity as hydrogen sulfide. In order to form sulfuric acid it must first be oxidized to sulfur dioxide (SO_2), then to sulfur trioxide (SO_3). On dissolving in water, these oxides form the weak sulfurous acid and the strong sulfuric acid respectively.

George Rosen
Wayne, New Jersey

Mr. Rosen is correct. Unfortunately, we garbled the process by which a foul-smelling gas evolves into an acid strong enough to turn rock into clay. Ed.

Giant squid

In his May 1996 article on the giant squid, Richard Conniff reported two hard-to-fathom findings by scientist Clyde Roper. First, Roper estimated that a 50-ton sperm whale may eat three or four giant squid per day. Second, Roper said there are roughly a million sperm whales in the world. Conservatively estimating, if only half of the whales are eating three giant squid per day, a cataclysmic calamari ingestion of 547,500,000 giant squid is occurring annually. Extrapolating further, if one assumes that the volume of a giant squid is approximately 400 cubic feet, a gargantuan 219 billion cubic feet of giant squid are being eaten by voracious sperm whales on a yearly basis. This figure, which comes to a voluminous 4,211,538,461 cubic feet of squid being consumed per week, does not even include the millions of giant squid that must *not* be eaten on a weekly basis in order for them to reproduce for those deep-diving dirigibles of death, the sperm whales.

The moon, as it turns out, is a little more than five billion cubic feet. We estimate, then, that if the moon were made of giant squid (as opposed to green cheese), about 80 percent of it would be consumed in one week by sperm whales of this planet. We at the Calamari Legal Institute are having difficulty digesting these figures.

Alan Pampanin, Bennett Savitz and Michael Greenberg
Calamari Legal Institute
Cambridge, Massachusetts

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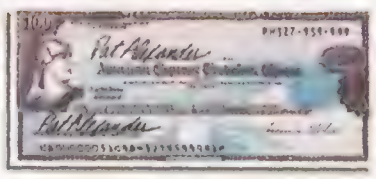

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The Object at Hand

By Stephen May

The circuitous route of Edmonia Lewis' masterwork, a controversial portrayal of Cleopatra at the moment of death, included stints as decor in a Chicago saloon and as a grave marker for a racehorse

The Death of Cleopatra, now restored and on exhibit at the National Museum of American Art, was saved by many sleuths.

"This [sculpture of Cleopatra] was not a beautiful work, but it was a very original and very striking one . . . [Cleopatra] is seated in a chair; the poison of the asp has done its work and the Queen is dead. The effects of death are represented with such skill as to be absolutely repellant—and it is a question whether a statue of the ghastly characteristics of this one does not overstep the bounds of legitimate art."

So wrote artist William J. Clark jr. in *Great American Sculptures* (1878) about one of the artworks on display at the Centennial Exposition of 1876 in Philadelphia. The person who created it, Edmonia Lewis, was the first professional African-American and Native American sculptor. It is symptomatic of her difficult life and neglected career that her most important piece, *The Death of Cleopatra*, which caused such a stir in Philadelphia 120 years ago, soon dropped out of sight and was not rediscovered until the late 1970s. Miraculously rescued from oblivion, it was recently conserved and has been placed on view at the Smithsonian's National Museum of American Art (NMAA). "Lost and Found: Edmonia Lewis' *Cleopatra*" presents the long-missing masterwork, along with other Lewis sculptures in the NMAA collection, through January 5, 1997.

The story of how Lewis' *Cleopatra* was resurrected involves twists of fate, near disasters and serendipitous discoveries, mixed with scholarly research and curatorial concern. It is the latest chapter in the saga of a talented, determined artist whose life was filled with ambiguities, reversals and triumphs. A minority female with limited training and experience, working in a male-dominated field, she overcame enormous odds to become a skilled and imaginative sculptor. Even today, she remains a mysterious figure, because of a lack of information about her peripatetic early life and last years, as well as the scarcity of surviving sculpture. Much of the mystery was of her own making, growing out of her reticent, elusive personality.

Even Lewis' birthplace is uncertain. It was either Newark, New Jersey, or Ohio or, most probably, upstate New York. Born about 1840, the daughter of a black father and a part-Ojibwa mother, she was orphaned in childhood and, it was later said, had been raised by her mother's people.

With the help of her older brother, in 1859 Lewis entered the Young Ladies Preparatory Department of Oberlin College, the first college in the country to admit women and African-Americans; there, she learned to draw. But trouble came when she was accused of poisoning two white classmates; awaiting the arraignment, she was abducted by a white mob and brutally beaten. The charges against Lewis were dismissed for insufficient evidence; arguing in her defense was African-American lawyer John Mercer Langston, later a Howard University professor, U.S. Minister to Haiti and Congressman.

Leaving Oberlin, Lewis moved to Boston, where abolitionist leader William Lloyd Garrison arranged for her to study with sculptor Edward A. Brackett. Soon afterward, in her small studio on Tremont Street, she created clay and plaster medallions of Garrison, John Brown and other antislavery stalwarts. Although proud of her heritage, Lewis said she wanted her work to be accepted on its own merits, not "because I am a

Last Week In Mr. Hoffman's Class, Michelangelo Sat On Rembrandt's Lunch.

Of course, accidents like this are bound to happen in Russell Hoffman's seventh grade art class where students actually *become* the artists they are studying.

After choosing an artist's identity to assume, each student conducts in-depth research and writes an autobiography. To further identify with their artists, for the rest of the class students may only use their "artist" name. At the end of the course artists give oral reports and answer questions from the class about their life and work.

In the eighth grade, Mr. Hoffman's students put their knowledge to work. Using enlargement techniques they learned the previous year, they paint beautiful outdoor murals of masterpieces they studied the year before.

For his innovative method of combining art, history, writing and speech, State Farm is proud to present Russell Hoffman of the Blach Middle School with our Good Neighbor Award, and to donate a total of $5,000 to their Fine Arts Department and student galleries and to the Covington Musee in Los Altos, California.

No one is more deserving. After all, he taught Van Gogh everything he knows.

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colored girl." Her most popular work was an 1864 portrait bust of Col. Robert Gould Shaw, the young white Boston Brahmin who died leading the all-black 54th Massachusetts Regiment in the assault on Fort Wagner, South Carolina, in the Civil War. The following year, with proceeds from sales of plaster copies of the Shaw bust, Lewis sailed for Rome to pursue her career. She was then in her early 20s.

Rome was a gathering place for American writers such as Nathaniel Hawthorne, Henry James and Harriet Beecher Stowe. With its legacy of classicism, and its abundant supply of marble and skilled stonecutters, the city was also a mecca for expatriate American sculptors, notably the aristocratic William Wetmore Story, son of U.S. Supreme Court Justice Joseph Story.

There was also a contingent of women sculptors grouped around neoclassical sculptor Harriet Hosmer and actress Charlotte Cushman, who made up what Story termed "a set whom I do not like." Lewis was welcomed into the women's circle, described by Henry James as "that strange sisterhood of American 'lady sculptors' who at one time settled upon the seven hills [of Rome] in a white, marmorean flock" (SMITHSONIAN, February 1992).

"One of the sisterhood," James continued in *William Wetmore Story and His Friends*, "was a negress, whose colour, picturesquely contrasting with that of her plastic material, was the pleading agent of her fame. . . ." Those comments aside, Lewis, along with Hosmer, Margaret Foley, Emma Stebbins and Anne Whitney, helped establish a place for women in the field of sculpture. Working in a studio once occupied by neoclassical sculptor Antonio Canova, Lewis at first carved her own marble, not only to save money but to avoid the accusation leveled at Hosmer and other women that their work was really the creation of native stonecutters.

One of Lewis' early Italian works, *Forever Free* (1867), portrays a black man who has broken the manacles of slavery and a kneeling black woman prayerfully celebrating the news of emancipation. It is now in the Howard University Gallery of Art in Washington, D.C. She also executed several versions of *Hagar*, one of which is now at NMAA. The biblical Egyptian maidservant of Abraham's wife, Sarah, Hagar was cast out into the wilderness. To 19th-century eyes, this sculpture of an outcast, her brow furrowed and hands clasped in despair, symbolized the plight of African-Americans. "I have a strong sympathy for all women who have struggled and suffered," Lewis said.

To develop her skills, Lewis copied classical sculptures from public collections around Rome. A devout Catholic, she created a number of religious works, most of which have been lost. She also produced small, playful "fancy pieces" with titles such as *Awake*, *Asleep* and *Poor Cupid (Love Ensnared)*. They were popular with visiting tourists as well as in the United States, to which she often returned to market her work. Her portrait busts ranged from heroic images of Ulysses S. Grant, Abraham Lincoln and Senator Charles Sumner to a small, idealized likeness of a Boston patron, Anna Quincy Waterston. Inspired by Longfellow's immensely popular poem "The Song of Hiawatha," Lewis created works such as *The Old Indian Arrowmaker and His Daughter*. This sculpture echoed the poet's depiction of Native Americans as proud, dignified people, a vivid contrast to the widespread American stereotype of the Indian as an untamed savage. It is likely that Longfellow saw some of these works when he visited Lewis' studio in Rome and sat for a portrait bust. This fine marble likeness, which does full justice to the poet's leonine head and curly beard, is now in the collection of the Fogg Art Museum at Harvard University. It was the centerpiece of an exhibition held there last year that traced affinities between the writer and the sculptor.

Lewis, of mixed African-American and Ojibwa ancestry, created *Cleopatra* for the 1876 Philadelphia Exposition.

At the height of Lewis' popularity in the late 1860s and throughout the 1870s, her studio was frequented by visitors intrigued by her mannish clothes, rakish red cap, charming personality and exotic background. Visiting Chicago in the 1870s, she sat for a series of *carte de visite* pictures, posing both in her sculptor's cap and jacket, and in a voluminous dark shawl. Her thoughtful expression and strong hands immediately strike the viewer.

A highlight of Lewis' career came in 1876 when she, along with other expatriates in Rome, sent works to the Centennial Exposition. Lewis sculpted Cleopatra, a popular subject at the time. An astute ruler romantically linked to Julius Caesar and Marc Antony, Cleopatra chose to die from the bite of an asp rather than submit to her enemies.

At that time, one of the most celebrated depictions of Cleopatra was a calm, idealized, regal likeness by Story. Immortalized in Hawthorne's novel *The Marble Faun*, it was a kind of benchmark against which other depictions were measured. Lewis created a fundamentally different image; in a break with the neoclassical canon, which downplayed strong emotions, she portrayed the queen at the point of death. George Gurney, NMAA's sculpture curator, says it is the only sculpture he knows that portrays Cleopatra actually dying or dead. "Perhaps Lewis thought other sculptors had misrepresented Cleopatra and she felt she had new insights," he says. Lewis portrayed Cleopatra seated on her throne, still crowned, her head and left arm hanging with the weight that comes when breathing stops. Yet, even at this desolate moment, as her right hand holds the venomous asp, the queen is a commanding presence.

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Lewis' *Cleopatra* caused a sensation. *The People's Advocate,* an Alexandria, Virginia, African-American weekly, reported on visitors' reactions. Except for a sculpture by an artist named Guannerio, said the paper, "*The Death of Cleopatra* excites more admiration and gathers larger crowds around it than any other work of art in the vast collection of Memorial Hall." In his book on the Exposition, J. S. Ingram called Lewis' work "the most remarkable piece of sculpture in the American section."

Following the Philadelphia Exposition, *Cleopatra* was exhibited in Chicago in 1878, where it was again a major attraction. Afterward, apparently unable to sell her two-ton work and perhaps deciding it was too large to ship back to Rome, Lewis put the sculpture in storage. And then, something went dreadfully wrong: in 1892, *Cleopatra* was reportedly displayed in a saloon on the Windy City's Clark Street.

Things only got weirder. Sometime later, the sculpture was acquired by a notorious gambler and racehorse owner, "Blind John" Condon, who installed it atop the grave of his favorite horse, Cleopatra. The grave was in front of the grandstand of his Harlem Race Track in the Chicago suburb of Forest Park. Before he died in 1915, Condon inserted a covenant in the property's deed that required *Cleopatra* to remain in place in perpetuity.

The statue remained on the spot after the racetrack became a golf course and then a World War II torpedo plant, but when a U.S. Postal Service facility was built on the site in the early 1970s, *Cleopatra* was hauled off to a contractor's storage yard in nearby Cicero. As it lay there deteriorating, it was spotted by Harold Adams, a local fire inspector. There was just something about it, he later told the *Chicago Tribune*; "she was like a big white ghost lying out there between all that heavy machinery and crying out to be saved." Adams had the sculpture moved to higher ground in the yard, and his son's Boy Scout troop cleaned it and painted it "so she'd look decent until somebody came along who'd know better what to do for her."

Enter the Historical Society of Forest Park, which acquired *Cleopatra* in 1985 after reading about the sculpture in the local newspapers. Frank J. Orland, a dentist who then headed the society, identified Lewis as the sculptor and

Broken and chipped, with several coats of paint, *Cleopatra* bore scars of the lost years before restoration.

made inquiries about her at the Metropolitan Museum of Art and elsewhere. Meanwhile, further paint was applied and a monument carver began to restore broken parts.

A short time later, an author's query ran in the *New York Times Book Review.* It had been placed by Marilyn Richardson, an independent curator and scholar of African-American intellectual history who was working on a biography of Lewis. Did anyone have any information on the work or writings of Edmonia Lewis? it asked. The notice caught the eye of a curator at the Metropolitan; recalling Orland's earlier inquiry, she suggested to Richardson that a missing sculpture might be in Illinois.

Her hopes high, Richardson went to Forest Park, where she was led to a storeroom in the local shopping mall. There was the sculpture, resting among paint cans and discarded Christmas decorations, covered with paint, and scarred by the weather and vandalism.

Richardson contacted African-American bibliographer Dorothy Porter Wesley, and they worked together to bring the discovery to the attention of scholars and the public. On learning of the sculpture, NMAA's George Gurney contacted Orland. Once the folks at the historical society realized what they had, and that they did not have the means to conserve or display the sculpture properly, they turned it over to NMAA. Last year, Chicago conservator Andrzej Dajnowski, working with Gurney, restored the sculpture.

The $30,000 task was, says Gurney, "a real conservation nightmare." Only one old photograph of the sculpture could be found to guide the reconstruction work on Cleopatra's nose, chin, headdress, breasts and left hand. The asp and missing fingers of the right hand were replaced, and sandals were restored to the feet.

"We've done the best we can to return it as close to its original grandeur as we've been able to deduce from the old photograph," says Gurney, who is known for his scrupulous approach to such matters. "Nothing we did is permanent," he adds. If more evidence of the work's initial appearance surfaces, "everything can be reversed."

And that is entirely possible. Who knows what additional information may come to light, not just about *Cleopatra,* but about Edmonia Lewis herself? It is known that she lived in Rome until at least 1909. Among the visitors to her studio in the 1880s were Frederick Douglass and his wife, Helen. But her later years are shrouded in mystery, including where and when she died. "We just don't know what happened to her," says Richardson, who has investigated in Italy and England as well as this country. Fortunately, the same cannot be said of her most important sculpture.

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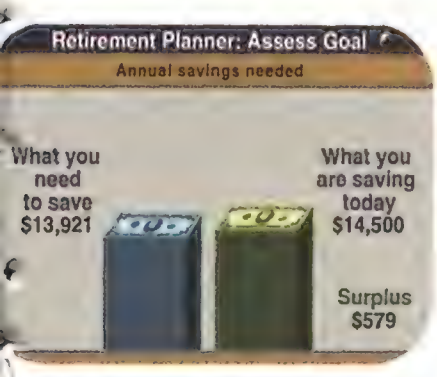
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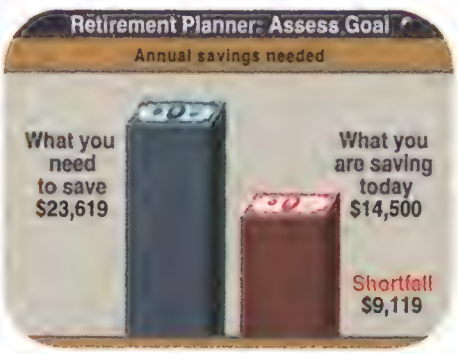
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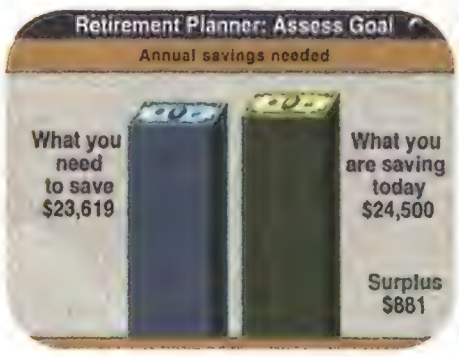
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Table 1. Adverse Experiences Reported in Placebo-Controlled United States ZYRTEC Trials (Maximum Dose of 10 mg) at Rates of 2% or Greater (Percent Incidence)

Adverse Experience	ZYRTEC (N=2034)	Placebo (N=1612)
Somnolence	13.7	6.3
Fatigue	5.9	2.6
Dry Mouth	5.0	2.3
Pharyngitis	2.0	1.9
Dizziness	2.0	1.2

Due caution should be exercised when driving a car or operating potentially dangerous machinery.

In addition, headache and nausea occurred in more than 2% of the patients, but were more common in placebo patients. The following events were observed infrequently (less than 2%), in 3982 patients who received ZYRTEC in U.S. trials, including an open study of six months duration; a causal relationship with ZYRTEC administration has not been established. **Autonomic Nervous System:** anorexia, urinary retention, flushing, increased salivation. **Cardiovascular:** palpitation, tachycardia, hypertension, cardiac failure. **Central and Peripheral Nervous Systems:** paresthesia, confusion, hyperkinesia, hypertonia, migraine, tremor, vertigo, leg cramps, ataxia, dysphonia, abnormal coordination, hyperesthesia, hypoesthesia, myelitis, paralysis, ptosis, twitching, visual field defect. **Gastrointestinal:** increased appetite, dyspepsia, abdominal pain, diarrhea, flatulence, constipation, vomiting, ulcerative stomatitis, aggravated tooth caries, stomatitis, tongue discoloration, tongue edema, gastritis, rectal hemorrhage, hemorrhoids, melena, abnormal hepatic function. **Genitourinary:** polyuria, urinary tract infection, cystitis, dysuria, hematuria. **Hearing and Vestibular:** earache, tinnitus, deafness, ototoxicity. **Metabolic/Nutritional:** thirst, dehydration, diabetes mellitus. **Musculoskeletal:** myalgia, arthralgia, arthrosis, arthritis, muscle weakness. **Psychiatric:** insomnia, nervousness, depression, emotional lability, impaired concentration, anxiety, depersonalization, paroniria, abnormal thinking, agitation, amnesia, decreased libido, euphoria. **Respiratory System:** epistaxis, rhinitis, coughing, bronchospasm, dyspnea, upper respiratory tract infection, hyperventilation, sinusitis, increased sputum, bronchitis, pneumonia. **Reproductive:** dysmenorrhea, female breast pain, intermenstrual bleeding, leukorrhea, menorrhagia, vaginitis. **Reticuloendothelial:** lymphadenopathy. **Skin:** pruritus, rash, dry skin, urticaria, acne, dermatitis, erythematous rash, increased sweating, alopecia, angioedema, furunculosis, bullous eruption, eczema, hyperkeratosis, hypertrichosis, photosensitivity reaction, photosensitivity toxic reaction, maculopapular rash, seborrhea, purpura. **Special Senses:** taste perversion, taste loss, parosmia. **Vision:** blindness, loss of accommodation, eye pain, conjunctivitis, xerophthalmia, glaucoma, ocular hemorrhage. **Body as a Whole:** increased weight, back pain, malaise, fever, asthenia, generalized edema, periorbital edema, peripheral edema, rigors, leg edema, face edema, hot flashes, enlarged abdomen, nasal polyp. Occasional instances of transient, reversible hepatic transaminase elevations have occurred during cetirizine therapy. A single case of possible drug-induced hepatitis with significant transaminase elevation (500 to 1000 IU/L) and elevated bilirubin has been reported. In foreign marketing experience the following additional rare, but potential severe adverse events have been reported: hemolytic anemia, thrombocytopenia, orofacial dyskinesia, severe hypotension, anaphylaxis, hepatitis, glomerulonephritis, stillbirth, and cholestasis. **DRUG ABUSE AND DEPENDENCE** There is no information to indicate that abuse or dependency occurs with ZYRTEC. **OVERDOSAGE** Overdosage has been reported with ZYRTEC. In one patient who took 150 mg of ZYRTEC, the patient was somnolent but did not display any other clinical signs or abnormal blood chemistry or hematology results. Should overdose occur, treatment should be symptomatic or supportive, taking into account any concomitantly ingested medications. There is no known specific antidote to ZYRTEC. ZYRTEC is not effectively removed by dialysis, and dialysis will be ineffective unless a dialyzable agent has been concomitantly ingested. The minimal lethal oral dose in rodents is approximately 100 times the maximum recommended clinical dose on a mg/m^2 basis and the liver is the target organ of toxicity. **DOSAGE AND ADMINISTRATION** The recommended initial dose of ZYRTEC is 5 or 10 mg per day in adults and children 12 years and older, depending on symptom severity. Most patients in clinical trials started at 10 mg. ZYRTEC is given as a single daily dose, with or without food. The time of administration may be varied to suit individual patient needs. In patients with decreased renal function (creatinine clearance 11-31 mL/min), patients on hemodialysis (creatinine clearance less than 7 mL/min), and in hepatically impaired patients, a dose of 5 mg once daily is recommended. Cetirizine is licensed from UCB Pharma, Inc.

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Smithsonian Highlights

Plan a Smithsonian visit in 1996!

Join in the fun as the Smithsonian celebrates its 150th anniversary with a year of special exhibitions and events. *Receive a free Associates' planning packet.* Write Smithsonian Information, Smithsonian Institution, Washington, D.C. 20560, or call 202-357-2700 (voice) or 202-357-1729 (TTY), 9 A.M. - 5 P.M., Monday - Friday; 10 A.M. - 4 P.M., Saturday - Sunday. *Note:* Parking near the Smithsonian is limited. The Metrorail subway, convenient to all museums, has parking at some stations (details in packet).

Begin your visit at the Smithsonian Information Center's Associates' Reception Desk—open 9 A.M. - 4 P.M. daily—in the Castle. Special materials await you there. The National Museum of Natural History's Court Dining Room offers Associates a discount on daily buffet service, 11 A.M. - 3 P.M.

Museum Hours

Smithsonian museums are generally open 10 A.M. - 5:30 P.M. daily, except December 25. Hours at the National Zoo are 9 A.M. - 4:30 P.M. daily for buildings, and 8 A.M. - 8 P.M. for grounds.

Smithsonian Website

The Smithsonian homepage on the World Wide Web (http://www.si.edu) offers on-line information about exhibitions, collections, events, products, and exhibitions and activities honoring the Institution's 150th anniversary.

'America's Smithsonian'

Rhode Island Convention Center, Providence, Rhode Island (through September 19) Centerpiece of the Institution's 150th-anniversary celebration, the traveling exhibition showcases such Smithsonian treasures as George Washington's sword, a 1948 Tucker sedan, an Apollo spacecraft and a 182-carat blue star sapphire known as the Star of Bombay. *Note:* Admission is free, but passes are required. Advance passes are available for a service fee of $3.50 each by calling 1-800-913-TOUR. On September 9-13, the Smithsonian Voices of Discovery program will sponsor a series of free public lectures by Smithsonian scholars on topics ranging from American costume and African-American art to satellite imaging and volcanology.

Special September Exhibits, Events

National Museum of American History

The 1896 Washington Salon and Art Photography (runs indefinitely) Show commemorates the 100th anniversary of the photography-as-art movement in America. See *Highlights Continued*, page 28.

Science in American Life Permanent exhibition tracks advances and discoveries in science over the past 125 years.

National Air and Space Museum

How Things Fly (opens September 20) New permanent exhibition gallery elucidates the basic principles of flight, aerodynamics and propulsion.

The Enola Gay (runs indefinitely) Exhibition features the forward fuselage of the *Enola Gay*, the B-29 that dropped the atomic bomb on Hiroshima.

National Museum of Natural History

HoloGlobe (runs indefinitely) Presented in association with the National Science Foundation, the first public showing of large-scale High-Definition Volumetric Display (HDVD) will give viewers a unique, scientifically accurate look at Earth and its solar system.

Eyes on Science: Illustrating Natural History (through January 1, 1997) Exhibition highlights artists and works that have furthered scientific knowledge.

Gem and Mineral Hall Gallery is closed for renovation until late 1997. The famous Hope Diamond is on view on the second floor of the Rotunda.

National Zoological Park

Wildlife Art Festival (September 20-22) Sponsored by the Friends of the National Zoo, the festival includes photography and art sales, lectures, wildlife photography safaris and a student paint-a-thon.

National Postal Museum

Located next to Union Station on Capitol Hill, the museum tracks the history of the nation's mail service.

The Jenny Class Reunion (through September 30) Display reunites some 20 of the famed 1918 Inverted Jenny stamps.

Freer Gallery of Art

Chinese Gardens in the Painter's Imagination (opens September 28) Paintings from the 12th to the 19th centuries depict real and imaginary gardens.

The Natural World in Indian Painting (runs indefinitely) Selection of works on paper represent different artistic approaches to painting nature in 15th-19th-century India.

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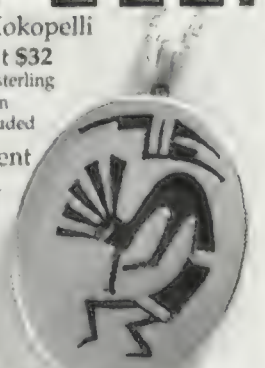

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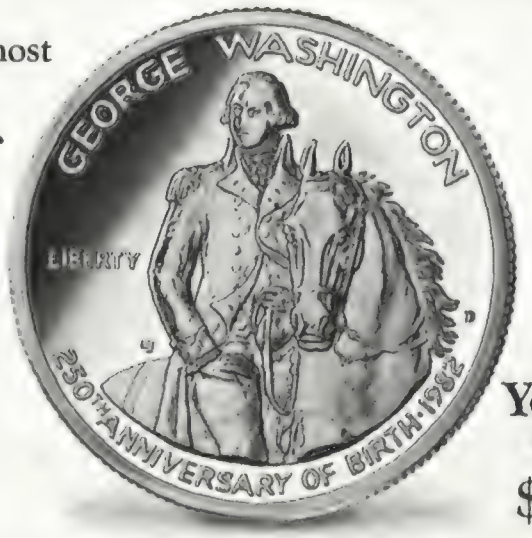

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The new Smithsonian Imax film, *Cosmic Voyage,* takes audiences on a jaunt through the Universe. Screenings four times a day at NASM's Langley Theater.

Arthur M. Sackler Gallery
Preserving Ancient Statues from Jordan (through April 6, 1997) Exhibition showcases ancient plaster statues from an ongoing excavation in Jordan.
Paintings by Masami Teraoka (through December 1) The contemporary Japanese-born artist uses images of death, AIDS and sexuality to portray the realities of the late 20th century.

National Museum of African Art
Ceramic Gestures: New Vessels by Magdalene Odundo (September 18 - January 2, 1997) Recent works by the well-known contemporary ceramist from Kenya.
The Ancient Nubian City of Kerma, 2500-1500 B.C. (runs indefinitely) Exhibition celebrates Kerma, the oldest city in Africa outside Egypt to be excavated.

Hirshhorn Museum & Sculpture Garden
Distemper: Dissonant Themes in the Art of the 1990s (through September 15) Works by ten internationally based artists.
Directions—Byron Kim: Grey-Green (through October 20) Paintings by the New York-based artist are from recent series inspired by Korean green-glaze pottery.

National Portrait Gallery
Image of the President: Photographs by George Tames, 1944-1974 (through September 1, 1997) Images by the Pulitzer Prize-winning *New York Times* photographer capture the many faces of the American Presidency.
Louis Armstrong—A Cultural Legacy (through October 27) Exhibition traces the life of the acclaimed jazz musician.

National Museum of American Art
Lost and Found: Edmonia Lewis' Cleopatra (through January 5, 1997) Show features the artist's long-missing sculpture *The Death of Cleopatra,* circa 1876. See *Object at Hand,* page 16.
The Art of Thomas Wilmer Dewing: Beauty Reconfigured (through October 14) Works by one of the most important artists of the Gilded Age.

Renwick Gallery
Calico and Chintz: Antique Quilts from the Patricia Smith Collection (September 13-January 12, 1997) Richly patterned quilts predate the Civil War.
Conservation by Design (September 13-January 12, 1997) Functional and sculptural wood objects illustrate issues of forest management.

Arts and Industries Building
Visual Journal: Harlem and D.C. in the Thirties and Forties (through September 29) Images by African-American photographers chronicle the black communities in Harlem and Washington, D.C.

S. Dillon Ripley Center, Rotunda Gallery
Strong Hearts: Native American Visions and Voices (September 26 - January 5, 1997) Works by 25 Native American photographers picture the multifaceted lifestyles of American Indians.

The Castle—Great Hall
Smithson's Gift New permanent display tells the story of the British scientist whose bequest founded the Smithsonian 150 years ago.

Anacostia Museum
Museum Renovation The museum will be undergoing renovation for about ten months starting October 1.

Heye Center, National Museum of the American Indian (New York City)
All Roads Are Good: Native Voices on Life and Culture (through February 1, 1998) Inaugural show features objects illustrating the diversity and continuity of Native cultures.

Cooper-Hewitt, National Design Museum (New York City)
Mixing Messages: Graphic Design in Contemporary Culture (September 17 - February 16, 1997) The first-floor exhibition galleries reopen after extensive renovation with a major show on U.S. graphic design from 1980 to 1995.

Office of Elementary and Secondary Education

The Office of Elementary and Secondary Education (OESE) provides programs, publications and services for teachers of pre-K through grade 12 nationwide. On September 28, OESE is sponsoring a four-hour interactive national teleconference on museum/school partnerships. Keynote speaker Howard Gardner will be joined by educators and museum specialists who have created model programs. For information on this free teleconference for teachers, school administrators and museum educators, call OESE at 202-357-3050, or TI-IN Network at 1-800-234-1245.

Smithsonian on the Air

Black Radio: Telling It Like It Was Encore of Radio Smithsonian's award-winning documentary about radio and the 20th-century transformation of the African-American community. The 13-part series is hosted by Lou Rawls.
The Nixon-Kennedy Debates One-hour Radio Smithsonian special kicks off the '96 Presidential debate season with an insightful review of one of the pivotal media events in American politics. Check local public radio listings.

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Highlights Continued

The emergence of art photography

In the late 19th century, three prestigious Washington, D.C. organizations played a key role in the founding and acceptance of art photography in America. The Capital Bicycle Club sponsored the first U.S. photography salon; the Cosmos Club provided the venue; and 50 of the images showcased at the May 1896 exhibition were acquired by the Smithsonian Institution for its newly created photography collection. The Washington Salon and Art Photographic Exhibition featured the work of amateur photographers—and some professionals—who were experimenting in art photography. The aim of this genre, also known as pictorialism, was to create photographs that were similar to paintings and to establish photography as a valid art form. Noted for their impressionistic and expressive style, this emerging group of photographers used special lenses and developing techniques to produce subdued, tranquil images.

Hailed as a success by renowned photographer Alfred Stieglitz, the 1896 salon included more than 345 entries. Now 43 of these images can be seen in a new show at the National Museum of American History. "The 1896 Washington Salon and Art Photography," which runs indefinitely, highlights the salon's seminal role in launching the amateur art photography movement in this country and in convincing the American cultural establishment that photography could indeed be considered an art form.
Diane M. Bolz

A popular theme among amateur pictorialists was to pose subjects in classical Grecian attire, as in E. J. Farnsworth's *To a Greek Girl* (above, left). John E. Dumont experimented with new darkroom techniques to make *The Connoisseur* (above). Pastoral images, such as *Idle Hours* (left) by Mary A. Bartlett, were typical of the genre.

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By Donald Dale Jackson

‘People say, You poor thing, and I’m thinking, I have four healthy kids’

Submitting to a scrub in the tub, the Addington quads are part of a booming new culture of multiple births.

Talk about taking a bath! The parents of 'supertwins' face draining expenses and long hours, yet most keep their heads above water

Kirk Aymond has other identities—he's a chemical lab technician and a Renaissance enthusiast, to name two—but on this spring afternoon he is inhabiting the all-consuming role that has defined him to the world for the past several years: father of quintuplets. He has parked his 15-seat van at an entrance to the Cortana Mall in Baton Rouge, Louisiana, and he's unloading. Like everything else about parenting five 3½-year-olds, this is a character-building job. Also, inevitably, it attracts a lot of attention.

Kirk removes his homemade five-seat stroller from the back of the van while his wife, Denise, extracts their baby, 7-month-old Laura. As Kirk readies the stroller, a three-tiered quintmobile with two two-seat rows and a single chair on top deployed stairstep-style, the kids pile out of the van. Harley, the hugger, and bespectacled Connor climb into the stroller's bottom row. Dark-blond Garrett and Alyssa, who believes she and Harley are married, occupy the second tier. Krysta, who lost her vision when she was 10 weeks old but sometimes seems the most venturesome of the lot, takes the top seat. Laura gets her own vehicle. After 20 minutes of buckling, negotiating, toy-stowing and fielding questions from startled shoppers ("Uh, what do you call that, 'quartuplets'?"), everyone is ready.

Denise, in command of the small stroller, handles the stream of questions as if she hadn't heard them all several hundred times before. "How do you make it through the night?" "With my eyes half open." "How come they look different?" "Those two"—Denise points to Connor and Harley—"are identical; the others are fraternal." "Glad it's you and not me." "Me, too."

Weaving through the mall corridors, the Aymonds leave ripples of wonder in their wake. One woman stops, opens her eyes wide and, holding up four fingers and a thumb, soundlessly mouths the question "Five?" A teenage girl, possibly an aspiring teacher, halts the procession to poll the quints. "If you're happy, raise your hand," she demands. Harley and Connor obligingly lift their arms. Some people beam, others grimace and look away. "Twenty years ago," Denise says, "I might have been the one grimacing. I was never a baby person."

A woman with a missionary impulse waylays them as they head for a fast-food oasis. Blocking the stroller, she distributes blessings. "Oh my, they're gorgeous," she declares, smiling benignly. "Praise the Lord." Denise, whose passage through quint motherhood has been eased by a relentless sense of humor, lets her eyes rest on several women pushing single strollers. "I want you to know," she says, "that I don't look at their one pitiful little baby and think less of their trouble."

After corn-dog nuggets, fries and Cokes all around, Garrett mounts a plastic chair and spreads his arms wide like a hopeful politician while Kirk ponders an obvious question: How do they cope with the multiple demands,

Photographs by Paula Lerner

the multiple *everything*, of raising quints? "Sure, I wondered at first how we could afford it," he says. "Then I realized that we had to take a day at a time. Things work out, you make do. You have to change your lifestyle, and you do. People turn up to help. You manage."

Denise agrees, in her fashion. "We went from DINK—that's Double Income No Kids—to SINK, Single Income Numerous Kids, and we're sinking fast," she says, retrieving a dropped coin for Krysta in mid-thought. "My whole mission is not to be just a mother, but to have a life. Friends help, family help, but sooner or later they leave. Me, I'm the crazy woman in the house who never leaves."

'Supertwins' climb the charts

The Aymonds are part of a phenomenon that has only recently begun to draw public notice—a population explosion of triplets, quadruplets, quintuplets and even sextuplets (two sets in the United States and eight other known sets worldwide). The escalation in the category known as "supertwins" began in the 1970s with the development of fertility drugs and techniques that stimulate ovulation. In the past ten years, as treatment for infertility has improved, the growth in multiple births has become almost a vertical line on the charts.

Denise Aymond has evolved into a supertwins number-cruncher herself, to the extent that she is an acknowledged expert on quint totals. When her five were born in October 1992, they were the 23rd surviving set of quints in the country. As of April 1996, there were 39, with more arriving about once every eight weeks. Denise knows this because she makes a point of calling every quint mom, usually well before delivery, to offer support and advice on the many problems of multiple pregnancies. When she heard that a woman from upstate New York was carrying sextuplets (successfully delivered in March), Denise reached for the phone. "I asked her if her gums were bleeding yet. It's one of the strange symptoms you get. She asked how I knew. She hadn't even told her doctor."

The National Center for Health Statistics in Hyattsville, Maryland, has figures for multiple births in 1972-74 and 1989-93. In the earlier period, the number of surviving triplets born annually averaged 900 babies (not sets); from 1989-93, the average was 3,172. Quadruplets averaged 43 per year in 1972-74 and 241 in 1989-93. Quints went from 11 to 32. Experts estimate that a quarter of the women who receive fertility treatments and do get pregnant have more than one child.

The issues raised by this extraordinary flowering of multiple births are only now coming into focus. How good, for example, is the medical treatment available to women expecting three or more babies? How about the advice expectant mothers receive? They are often urged to undergo "selective reduction," the abortion of one or

Denise Aymond orchestrates the post-bath chaos as her quintuplets and their baby sister get ready for bed.

A surprised shopper looks on as the Aymond family goes malling in style with the quintmobile built by Kirk. Opposite: The backyard action is nonstop on a hot day.

When the Aymond quints were born in 1992, there were 23 sets in the United States; now there are at least 40.

more fetuses to save the others, but they frequently have little to go on, besides fear, in making the agonizing decision. Supertwins are almost always premature and thus are more susceptible to fatal conditions and diseases, and other afflictions, such as Krysta Aymond's blindness. Hospital costs are astronomical—the Aymonds' insurers have paid more than half a million dollars.

Beyond the medical questions, what is society's obligation to the new culture of multiples? Should there be a supertwin "safety net" to protect families from financial ruin? Special college scholarships? Should school officials keep the siblings together, separate them or let their parents decide? Studies show that child abuse is more common in multiple-birth families, in part, perhaps, because of sleep deprivation. "Unfortunately, these issues are not really part of our country's consciousness yet," says Patricia Maxwell Malmstrom, director of Twin Services, a resource agency for health and family service providers in Berkeley, California.

In the era before fertility drugs, quad and quint families were viewed as freaks of nature. Sometimes, as with the famous Dionne sisters of Canada, they were exhibited in glass-walled playgrounds, like zoo animals. The supertwins' best friend in those years was Helen Kirk of Galveston, Texas, whose interest was originally piqued by her work as an x-ray technician for a doctor who delivered quads. "Miss Helen" corresponded with supertwin families, sent the youngsters dollar bills on their birthdays, and collected souvenirs, pictures and information about them. Through sheer persistence, she eventually became a kind of maven of multiples and everyone's favorite authority. "Here's my black book," she offers, opening a small notebook. "It says I visited 15 sets of quints, 58 quads and hundreds of triplets."

'People looked at them through a window'

Now 80, Miss Helen maintains her supertwin archives in a 20-foot-long room lined with floor-to-ceiling shelves brimming with cardboard boxes. The boxes hold letters and photographs and posters, souvenir ashtrays and handkerchiefs, bumper stickers and dolls, books and magazines and clippings. "The Galveston quads were the Badgett girls," she recalls. "They were on view in their house for an hour in the mornings and afternoons. People looked at them through a porch window." Miss Helen's correspondence has tailed off since she suffered a stroke a few years ago, but she still hears from the media when supertwins are born.

"I always loved the alliterative names," she says. "Like the Badgetts—Jeraldine, Jeanette, Joyce and Joan. There were triplets in Oklahoma named Obie, Ocie and Odie, all girls. And, let's see, the Davises—Casey, Christa, Charla, Chanda and Chelsa." Her conversation is sprinkled with supertwin lore: "John-Boy Walton, you

At the Triplet Connection Convention held in Monterey, California, this year, about a hundred sets showed up for fun and photographs. Among them were (clockwise from top left): Shayna, Cassady and Tori Latham; Douglas, Melissa and Stephanie May; Ari, Anijke and Asher Simon; Bailie, Andie and Catie LeDesma; and Skylar, Rhiannon and Angelique Flinn. The annual get-together gives parents a chance to trade stories and advice. After last year's meeting a new mom remarked: "I found myself looking at other moms and thinking, They made it; so can I."

know, Richard Thomas, he has triplets. . . . During the war, people liked patriotic names for triplets. One set was named Franklin, Delano and Roosevelt. And there was Franklin D., Joseph S., for Stalin, and Winnie C., for Churchill. Winnie was a girl."

For a supertwin mother-to-be, the first hurdle is mental. Women who undergo fertility treatment have usually been trying to get pregnant for years. Doctors tell them that drugs like Pergonal increase the chance of a multiple birth and thus prematurity, with its higher risks, but the cautions don't always dampen the aspiring parents' enthusiasm. "You're on an emotional roller coaster when you're in treatment," says triplet mother Jody DeBussey of Westport, Connecticut. "We were so excited when we saw three heartbeats on the sonogram that we felt we could handle anything."

Denise Aymond, carrying five, was less confident. "They told me first that it was four. I thought, OK, two twin strollers, four car seats, fine—they'll fit in the car. Then they said five. I'm thinking, How do we do that?

That was a whole different thing. The endocrinologist recommended reducing by two at ten weeks or so, but we knew we could lose all five if we did that. We spent a weekend absorbing this; then I decided that if we let them tamper and lost them all I'd never forgive myself. If we left it alone and it happened, I could live with that."

"We were in agony for two weeks with that decision, you feel so guilty," says Patty Czelada of Stamford, Connecticut, mother of four healthy 3-year-olds. "They took us to the hospital where they do it. Everything they told us about keeping them all was negative, that the chances of all four surviving were minimal. But God gave us four, so we kept four." The dangers are real. One study found the death rate either before or soon after birth was 19 times higher with triplets than with singletons. "The choice to reduce or not is a double bind," says Pat Malmstrom of Twin Services. "It's a risk either way."

Denise Aymond felt pessimistic even after deciding against reduction. "I was just afraid it wasn't going to work, but Kirk was always optimistic. My girlfriends wanted to hose him down." At 13 weeks, she joined the two main nonprofit support groups for supertwin moms, the Triplet Connection in Stockton, California, and Mothers of Supertwins (M.O.S.T.) in Brentwood, New York. Both were founded by triplet mothers—the Triplet Connection by Janet Bleyl in 1983 and M.O.S.T. by Maureen Boyle in 1987—and took aim at the same void: an absence of reliable, accessible information on the problems that multiple-birth families confront.

A peer group homepage on the World Wide Web

Janet Bleyl had a particularly rocky ride through a triplet pregnancy after having already borne six kids. Like many supertwin mothers, she didn't feel the onset of preterm contractions, and by the time she was hospitalized at 26 weeks, doctors had to administer heavy doses of drugs to delay her labor in order to save the babies. For three more weeks, she couldn't eat or drink, and her kidneys actually shut down before she delivered three dangerously ill 2½-pound boys. "I'll never forget that first horrifying sight of them," she says. "Their heads were like oranges; you could see all their veins; their chests were sunken in. Tubes and needles everywhere. They looked like 95-year-old men." The idea for the Triplet Connection stemmed from her experience.

The Connection sends new members a hefty packet of medical and child-rearing advice, along with a list of other supertwin mothers they can contact. There is also a homepage on the World Wide Web at http://www.inreach.com/triplets.

The support groups help women ask the right questions, such as which procedures are covered by insurance. Home uterine monitors, for example, which permit expectant mothers to keep track of contractions at home and which electronically transmit the data to a hospital, are covered by some insurers but not others. Insurers normally pay all or most of the tab for a premature newborn's stay in intensive care, which averages $255,000 for 34 days for triplets.

"Before the babies are born," Pat Malmstrom says, "supertwin parents have to answer these questions: Who is going to take care of the babies while we sleep? How much sleep do we need? How will we feed them seven or eight times a day for three months? Who will help? Will they be breast-fed? And who's going to bring food into the house, prepare it, do the laundry and bathe the babies, in an age when even great-grandparents are working?"

Parents of multiples have to overcome any resistance they may feel toward asking for help. "It's hard; you have to humble yourself to admit you need help," Denise Aymond says. Most families use some combination of relatives, neighbors, volunteers and professionals, such as those sometimes provided gratis by local "respite" programs. "I had a list of a hundred people when the quints first came home," Denise says. "It was like a Motel 6 around here—the light was always on."

When the McDonough quadruplets take a snooze at the same time, it's a big treat for parents Kathy and Joe.

The Aymond quintuplets are all business when they convene to eat ice cream. They receive the same flavor but each can choose the color of the cone. They are, from left, Alyssa, Harley, Krysta, Connor and Garrett.

Quad and quint families often receive freebies from hometown and national businesses. "The Target store gave us 25 percent off on diapers," says quad father Randy Addington of Lodi, California. "Gerber sent us coupons. Mead Johnson gave two years' worth of formula. A motel donated a room so Dawn and I could get away for a night. We slept 15 hours." The Aymonds harvested free formula, a discount on a Ford van and $2,500 to start a college fund, among other largess.

The flip side of public generosity is public nosiness. Keith and Becki Dilley, parents of America's first surviving sextuplets (born in May 1993), were startled one day to see a tour bus packed with seniors idling in front of their house in a small Indiana town. A woman rushed to the door and demanded that the Dilleys wake the babies for a picture. "You get the most unfeeling questions," says Maureen Boyle of M.O.S.T. "A woman in a grocery line asked me if I had to 'do it' three times in one night." "They ask which child's the smartest, which do you like best and if the babies are 'natural,' as if they're not natural if we take fertility drugs," Jody DeBussey says.

The full impact of adding three or more consumers to the family often doesn't hit right away. "The stress sometimes kicks in at about six months," Maureen Boyle says. "Until then you're mainly trying to keep the babies alive. When mothers call me for help, I tell them to focus on short-term goals, like shifting to a three-hour feeding at 7 pounds, sleeping through the night at 10 pounds, starting solids at 14. These are practical things they can look forward to. You can't imagine what a big deal it is to be able to take a shower without worrying."

But even for a supertwin mother who has Dad, Grandma or a neighbor working the midnight shift, the stress can be nerve-shreddingly intense. One researcher who studied families of twins found the risk of child abuse to be between 2½ and 9 times that in singleton families. This comes as no surprise to Dawn Addington, who has four 3-year-olds and still works part-time as a nurse. "I get to the point where I'm going batty. It's usually connected with lack of sleep," she says. The daunting "terrible twos" are the worst time. A British mother speculated to a researcher that quads learning to assert their personalities at that age have "the added handicap of trying to establish themselves within their own group as well as the family as a whole." Hers sometimes established themselves by galloping through the house like ponies. Denise Aymond was struck by her quints' different tantrum styles: "Garrett was a head banger. Alyssa holds her breath and turns blue."

Most schools have not yet addressed the escalation in multiples, but they can't delay much longer. "It won't be long before there will be triplets in most large school districts," Maureen Boyle predicts. Schools have traditionally separated twins to permit their individuality to flourish, but supertwin families and their advocates prefer a family-by-family policy. "Parents complain to us

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Supertwin expert Helen Kirk (right) got hooked on the subject not long after the Dionne sisters (above) were born in 1934.

that their kids are forced into separate classes," says Pat Malmstrom, "but there's no one-size-fits-all solution. It should be case by case and year by year."

Hospitals and schools, Malmstrom believes, are often insensitive to the bonding that occurs among multiples. Nurses have found that putting two premature siblings together in a single incubator sometimes helps stabilize their heart rate and blood-oxygen level. Dawn Addington has seen the bond in her quads: "They're often tender with each other. When they wake up, they're always glad to see each other, and they read each other's moods. I'll discipline Haley, and Heather will go and get a blanket for her."

The flotilla of vans parked on the quiet residential street in Stamford, Connecticut, this weekday evening suggests a caucus of Little League coaches, but the drivers are supertwin moms gathered for their monthly share-and-support meeting. Six of the nine present are mothers of triplets, one is expecting triplets, two others have quads. Most are in their early 30s, fit, articulate; a few still work. There is no leader, so the conversation moves more or less naturally to toilet training, skipping along briskly from there.

"Competition doesn't work. You can't shame them by saying their brother or sister did it."

"I showed them underwear at a store and told them they'd be ready for it when they were trained. It worked that same day."

"We're entering my 5-year-olds in parochial school. I'll confess it, I played the triplet card. The school has never had triplets before. They want us. But they only have two classes, so we can't separate all three children. We're debating what to do. Tuition is $3,900 each."

"Do you find what I do, with strangers? They think they can ask you the most personal questions if you have triplets. They asked me if I had my tubes tied."

"I get sick of it. I told one woman I had to sleep with three men in one night. I think she believed it."

"What gets me is that people think they can *touch* my kids because they're triplets."

"By the way, did you hear that they're recalling certain vans? Something about the brakes."

"Can we all agree that triplet moms are better at setting limits?" All agree, with gusto. "I mean, singleton mothers let their kids get away with murder. We can't let that happen. Otherwise, *whap*—chaos! We can't fool around with little stuff."

"We were at a playground and another kid took a toy from mine. Being a triplet, my guy just got another one. I think they share better."

It continues this way for a couple of hours. One or two women peel off occasionally to get coffee or cake from the dining room. The hostess's husband has their quads under control. Not a hint of acrimony sullies the atmosphere. This is a confident, capable bunch. The others offer encouragement to the pregnant woman and the mother of 5-month-old quads. It is she who has the last word: "I should go. My first call is in about three hours." Cheerfully, they disperse to their vans.

Advocates for supertwin families contend that society

Donald Jackson, the father of two children born one at a time, found himself marooned on a traffic island recently with seven sets of quintuplets.

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ignores their special needs. "It's not a plot, it's a fact," Pat Malmstrom says. "Nobody in health care or social services is trained in the subject; there's nothing at medical schools or other grad schools."

The Council of Multiple Birth Organizations, an offshoot of the International Society for Twin Studies, issued a "statement of needs" for twin and supertwin families last year. The manifesto included improved education and care to avert preterm labor, better nutrition counseling during pregnancy, institutional encouragement of bonding among multiples and flexible policies that respect their unique relationship, such as placing twins and triplets on the same athletic teams. "We need a national policy," Pat Malmstrom believes. "There's no safety net. If a family's medical insurance pays only 80 percent, say, they're in big trouble."

"We have to recognize first that a multiple birth is a high-risk pregnancy," says Janet Bleyl of the Triplet Connection, "and that it needs to be managed by high-risk professionals. A high-level neonatal intensive care unit should be standard for multiple births. Insurers should recognize that preventive care is cheaper than treatment of sick, premature babies. If women have kids already and bed rest is prescribed, the health care provider should furnish help. It ought to be covered when it's necessary. So should home uterine monitors." Maureen Boyle of M.O.S.T., focusing on where the trouble begins, urges research and the development of programs that would educate doctors and prospective parents about the kinds of fertility treatments that so often produce multiples.

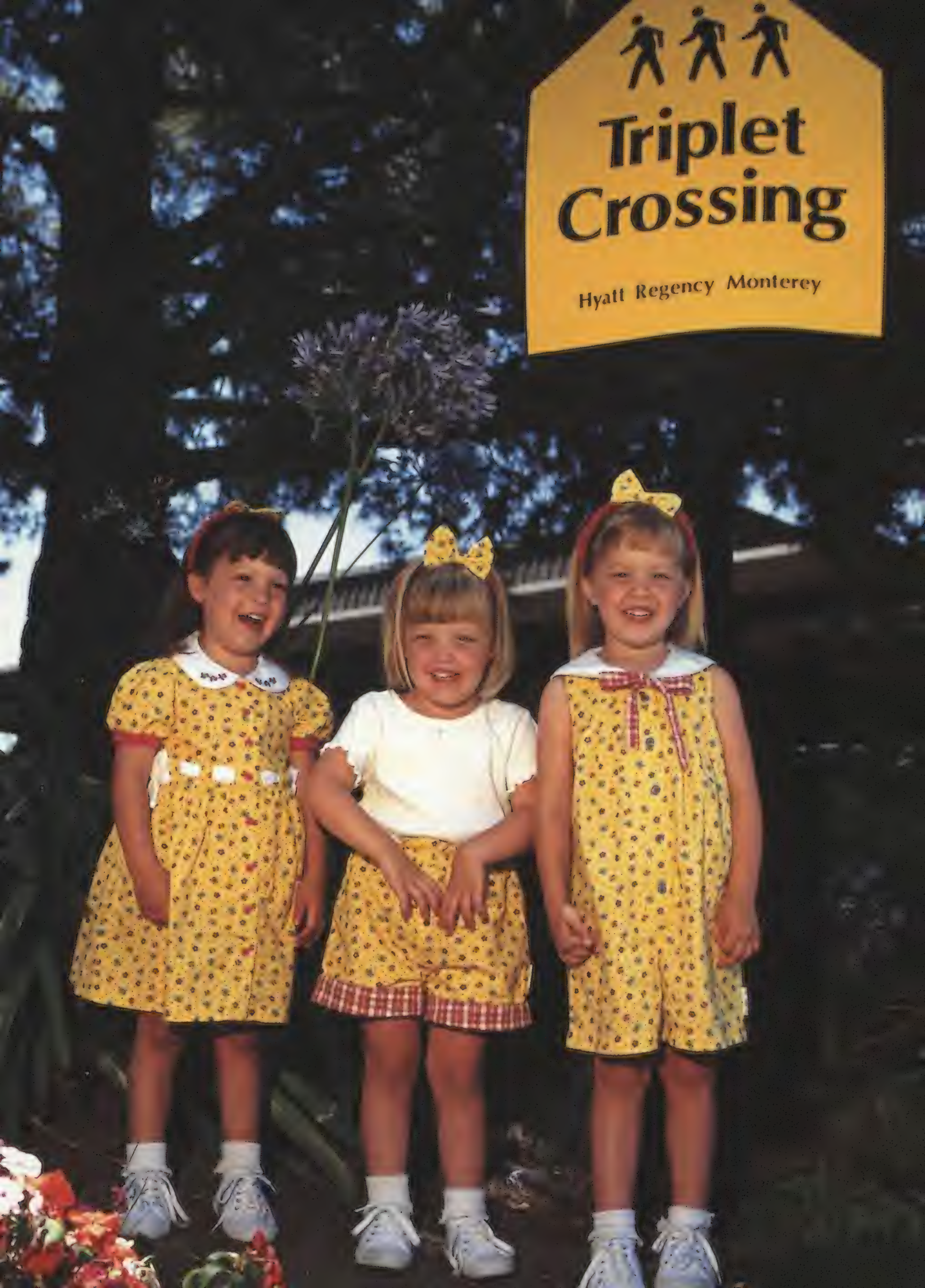
It's Saturday morning at the Addington house in Lodi, California. Parents Dawn and Randy patrol quad-occupied territory: the kitchen and living-dining room. Their four 3-year-olds—Jared, Heather, Hannah and Haley—seem to drift apart and then bounce off each other like atoms under a microscope. Heather sits in a corner of the living room, methodically removing her clothes. Jared barrels through on a plastic trike. Haley does wind sprints. Hannah dives into a box of toys. Randy washes breakfast dishes, changes the television channel, referees a flare-up and helps Heather find her underwear, all within five minutes. Dawn moves at the same hectic pace. It's a four-ring circus. Two of the kids take turns shutting each other in a closet. Hilarity ensues. Randy picks up Haley and announces that she is a sack of potatoes. Haley giggles. "The best times are when we're all rolling around on the floor," Dawn says.

Action is nonstop in a quad household: eat, play, dress, play, snack, go out, play, eat, fuss, nap, play, eat. Time to go to the park. "Whose turn to sit in the front of the van?" "Mine," four voices reply. "Hannah, where are your shoes?" Hannah finds one, holds it up triumphantly. Addingtons spill out at the park and appropriate the swings. Randy and Dawn push. Bathroom traffic is heavy. "Sometimes I spend all my park time in the bathroom," says Dawn. Randy and the quads walk across a lawn. Something halts them, and for an instant the four toddlers and their father are frozen in a tableau, the kids' heads cocked at the same angle, like kittens. The moment passes and they break into a run toward their mom, who declares them all winners. "We don't get attention like we used to," she says. "Now we could be—who knows?—a day-care center." Randy warms Jared's hands, then Hannah and Jared hug.

Thirty minutes at the park, then off to McDonald's. Dawn takes orders in the car: "How many hamburgers and how many nuggets?" She orders "two hamburger Happy Meals for girls" and "two nugget Happy Meals, one boy, one girl." "You give the sex so you get the right toy," she explains. The clerk recognizes them. "Aren't you the. . . ?" she begins. Dawn nods. Everyone eats except Heather, who spends her time spilling her fries and patiently replacing them in the bag, one by one. When she is scolded, her eyes glaze, apparently an ominous sign, and Dawn takes her outside for a time-out.

Fuss time starts on the way home. The toys—Jared gets a robot, the girls get horses—don't deflect it. Back home, the sleeping mats come out and the quads go down on the living-room floor. Mister Rogers sings softly on TV. Randy lies down next to Haley. Blessed quiet descends, two hours of peace. "Sometimes I think it's a miracle, you know," Dawn says. "I mean, for years I couldn't get pregnant, now I have four. I was afraid of losing them and afraid of having them. Now they're 3 years old. People say, You poor thing, and I'm thinking, I have four healthy kids. It's a miracle."

Four-year-old triplets Jessianne, Juliette and Jenna Holder demonstrate how to multiply a smile by three.


Triplet
Crossing
Hyatt Regency Monterey

By Steve Kemper

If it moves, grab it, but try not to get the end that bites

That's the advice researchers in Venezuela give volunteers who help them find and collect specimens of the world's biggest boa

We are slogging through knee-high muck in a Venezuelan swamp, hoping to step on anacondas, the heftiest snakes in the world. Jesús Rivas, barefooted and only a little crazier than most field biologists, offers some tips for detection. "You can tell by the way the mud bounces," he says. "Or sometimes you'll feel the snake move. If you have any doubt, the best thing is to reach down and see if you feel scales." Something he sees in my face makes him add, "It won't bite unless you grab it too close to the head."

Rivas considers this playing it safe. "I used to put my arm in the water and let the snake bite me," he continues, "because then I knew where the head was and it was easier to catch." Now he uses that method only as a last resort. For instance, he got chomped the previous day when he offered himself as bait to stop a snake that was getting away. "I figure a bite isn't as bad as losing a snake," he explains, which pretty much sums the man up. María Muñoz, Rivas' research partner, sighs and chuckles. She is a petite woman who seizes anacondas while wearing lipstick and pearl earrings. "If you reach down and feel *big* scales," says Rivas, continuing his lesson, "it's a caiman. We've stepped on hundreds of them and have never been bitten."

Rivas, 32, and Muñoz, 35, are heading up a joint effort by the Venezuelan Wildlife Department (PROFAUNA), the Convention on International Trade in Endangered Species of Flora and Fauna (CITES), and the Wildlife Conservation Society to conduct the first field study ever done on the anaconda (*Eunectes murinus*), the largest of the nonpoisonous boas. Both are Venezuelans and both are doctoral candidates, he at the University of Tennessee, she at Universidad Simón Bolívar in Caracas.

The study is taking place on a 130,000-acre ranch called El Cedral (after the many cedar trees in the area), near the town of Mantecal in the Venezuelan Llanos, or plains, region. During the wet season from May to September, much of this huge savanna becomes a shallow inland sea. In the dry season, the receding water collects in the lowlands; as it becomes more concentrated, so do the anacondas, making them a bit easier to find.

Over the course of the past five dry seasons, Rivas, Muñoz and the occasional volunteer like myself have pulled more than 450 anacondas from the ditches, bogs and streams of El Cedral. Despite the snake's fearsome reputation, no one here has come close to being eaten, crushed or suffocated, though bites aren't uncommon.

Much of what the two scientists are learning about the snakes' diet, mobility, gender differences and mating habits is new. But the project is of more than scientific consequence. PROFAUNA will use Rivas and Muñoz's findings to develop a management plan that may include hunting the snakes for their skins. The main purpose of the study is to obtain basic information on the biology of anacondas (also known as water boas) that will enable wildlife officials to decide whether a conservation program based on commercial harvesting would be viable.

At the moment, all trade in anacondas is prohibited in Venezuela and most other South American countries where they occur. Guyana and Suriname, however, each have annual quotas and periodically export live snakes for zoos, research and the pet trade. The demand for pets is low because the creatures are so pugnacious and difficult to keep. Some skins are traded illegally, mostly through Brazil and Paraguay, but everyone I spoke to—officials in Venezuela and the United States, people in the Llanos, and Rivas and Muñoz—agrees that the skin trade is not having a major impact on anaconda populations. The creatures are hard to find and catch; and though their big scales and dark, subtle patterning are perfect camouflage in a muddy slough or a mass of water hyacinths, they don't translate well into flashy belts, shoes and purses. Incidental killing is a bigger problem for anacondas than the skin trade or habitat destruction. Most people who live near the snakes are afraid of them and try to avoid them, but ranchers and their employees routinely kill them on sight.

Soon after photographer Gary Braasch and I arrive at El Cedral, Rivas and Muñoz take us into the field. The

As scientist Jesús Rivas struggles to subdue a brawny anaconda, it's not easy to tell who is capturing who.

Photographs by Gary Braasch

ranch is crisscrossed by a few raised dirt roads that run in long lines straight to the horizon. Our truck sends dozens of iguanas and capybaras scurrying. The roads are flanked by flooded channels crowded with ducks, wading birds and more capybaras. Beyond these channels begins a vast patchwork of bogs and grasslands cut by runnels. The savanna is dotted with thousands of water birds and still more capybaras, plus an occasional fox, caiman and white-tailed deer. Eco-tourists appreciate the ranch for its spectacular wildlife. So do anacondas, which eat it.

We disembark and wade across a waist-high channel to some hyacinth flats. Two biologists who are studying capybaras have joined us. Rivas and Muñoz saw a large anaconda "breeding ball" near here earlier in the day and have been waiting for reinforcements to help capture the snakes at the orgy.

A breeding ball consists of anywhere from 2 to 12 males coiled around a female and each other in an impressive tangle for as much as two to four weeks. No one knows why the courting period lasts so long. How the males and females find each other is another question. The prevailing theory is that the female lays down a pheromone trail as she crawls along, but Rivas and Muñoz have noticed that males following females tend to lick the air constantly. And even though mating females don't move around much, the males still flock to them from all directions. Rivas thinks the female must emanate some sort of chemical signal that the males pick up through their tongues. "They are very chemical animals," he says. "Their flicking tongues give them a whole universe we aren't aware of."

He also has noticed that when he shoves his hand into a breeding ball, the males use their powers of constriction to squeeze him out, so he surmises that the ball may be a slow-motion wrestling match to see who can maneuver into mating position with the female, with victory going to the strongest. But the female may have her own preferences, and since she is typically three to five times bigger than the males, she may use her superior strength to deflect some suitors and select others.

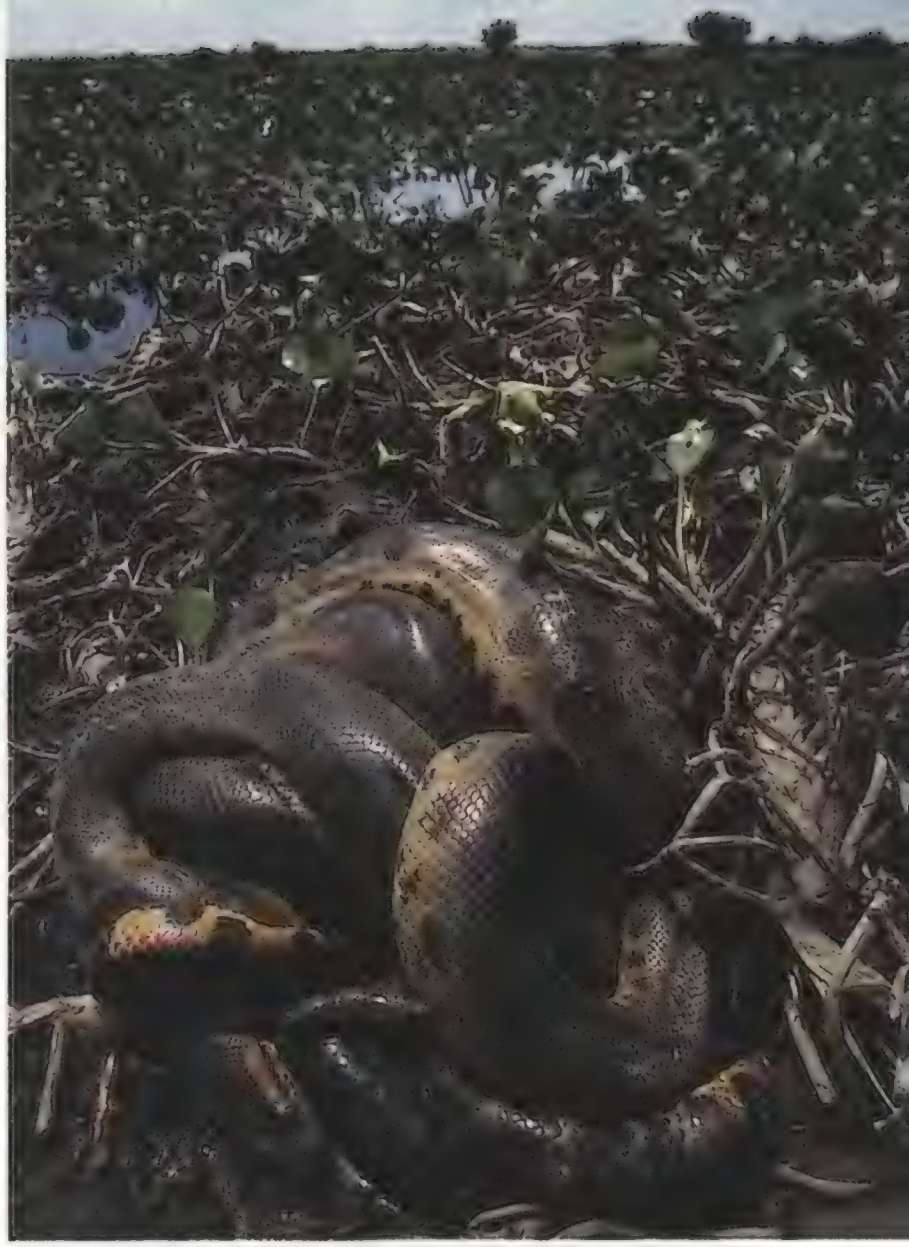
"The idea is to disturb one male at a time and not disturb the female, so we make sure to catch them all," instructs Rivas as we approach the ball, which is resting motionless on the edge of a muddy channel. I find this hummock of scales, teeth and muscle thrilling but alarming. I decide to stay on the sidelines until I understand the role of the snake-grabber a little better.

Rivas counts the males: "Nine!" Seconds later he and the others have firm grips on large, writhing, unhappy anacondas. If possible, they grab the snakes just behind the head. Once caught, a snake immediately coils around its captor's arms or legs. I jump in to help with the unraveling, and my forearms are soon enwrapped with anacondas. It's not as bad as I expected—the squeeze is firm but not painful. Rivas tells me, however, that it can be. "The snakes are incredibly strong," he says. "Even small males wrapped around a forearm can make my hand turn red, then purple, then go numb." I ask, just in case I need to know, if it's possible to escape a constricting snake by choking it. "Yes, you can choke it, but the snake will be doing the same to you, and since the snake is much stronger, you will be the first one to have circulatory arrest."

Soon eight males are squirming in a big plastic drum. (One of the nine had escaped, to Rivas' chagrin.) Rivas and Muñoz let the female go free to attract more suitors.

Back at the small house provided for the researchers by the owners of El Cedral, we put the males into old fertilizer sacks and leave them scattered around the concrete floor of the living room. "Sometimes María freaks out in the night when the sacks start moving around," says Rivas, "and she really *hates* it when a snake escapes."

The next morning, we wade into the small Rio



Above: Male snakes coiling around a female create a conspicuous breeding ball in the savanna wetlands. Opposite: Volunteers help María Muñoz (in white hat) and Rivas (right) catch as many males as they can.

A frequent contributor, Steve Kemper lives in the wilds of suburban Connecticut, where he boldly captures (and releases) garter snakes.

Guaratarito, looking for more snakes. The water is brown, the bottom muddy. "There are stingrays here," Rivas warns. "Drag your feet to kick them ahead of you." I wonder why the piranhas and electric eels that also inhabit these waters don't even merit a mention. We carry long poles to poke into the shallow caves beneath the undercut banks. Anacondas like to relax in such places. For three hours, we wade and poke, poke and wade, with no luck. Rivas thinks the snakes have been dislodged by rising water caused by recent rains.

We spend the afternoon back at the house cataloguing the males from yesterday's breeding ball. Sitting on the floor, Rivas reaches into a bag and pulls out a snake, which emerges snapping audibly. He measures its head, then Muñoz slips an old sock over its face and wraps a few loops of electrical tape around it. The sock blinds the snake, calms it down and decommissions its teeth.

When a snake refuses to lie still, Rivas holds it down with his legs while he measures its tail and spurs (the small, claw-like appendages on either side of the cloaca). Big snakes, 12 feet or more, require at least two people to manage them. Muñoz records the date, hour and location of the find. Using a razor knife, Rivas nicks away nine scales along one side of a spur, and two along the other side, leaving an uneven white V. Then he removes seven scales on the snake's other flank, thus assigning this particular anaconda the number 792. If it's recaptured, this numerical tattoo will identify it. The second form of ID is the pattern of scales on the black-and-yellow underside of the lower tail—as unique to each snake as a human fingerprint. Muñoz records this on the data sheet. Then Rivas takes a blood sample, which he'll analyze for its DNA.

Several of the males from yesterday have been captured before. Many of them bear scars. Rivas points out a fresh wound on one big male. "It's a double puncture, probably from capybara teeth, because it's the right pattern for it—holes about three inches apart."

The most time-consuming part of cataloguing snakes is measuring them. Rivas or Muñoz, or sometimes a lucky visitor, attempts to hold the captive still while the other person runs a piece of twine along its spine. The snake at first makes a mockery of the process by stretching, contracting, coiling, writhing and wrapping itself around the data gatherers. Rivas and Muñoz's solution is to take at least three measurements. The first one, when the snake

Muñoz assists Rivas in an operation to implant a radio transmitter in an anesthetized female anaconda.

is most agitated, can vary by six inches or more from the last one, by which time the animal has usually calmed down. The males from yesterday's breeding ball are typical: 7 to 10 feet long, 10 to 20 pounds.

While trying to hold down a big male for measuring, I nearly gag on a sudden noxious smell. "He musked you," says Rivas. The musk emerges from glands near the cloaca. It's the consistency of creamy lotion, usually toffee-colored but sometimes reddish. As an experiment, Rivas once put some musk on the floor and watched flies taste it; they died. He put some in a glass with freshwater shrimp; they died, too. And when he poured the musk water into the control glass, it killed all the shrimp in there, as well. "The snakes probably use it to prevent ticks and leeches from attaching to the cloaca, one of their few parts that aren't scaly," he says.

The last snake to process is a breeding female caught the day before I arrived. "It's Monica!" exclaims Rivas in happy recognition. "We caught her in '92 when she was breeding, and now we've found her again, within 100 meters of the same place." (Though most of the males get only a number, the scientists often name big females after female visitors, or male visitors' wives and girlfriends. I last saw my wife Judith's namesake, an extremely ornery 16-footer with a head bigger than a man's hand, slithering toward a couple of cormorants.) Rivas fondly pats Monica's massive flanks. "She has grown. She is doing beautifully." She measures nearly 12 feet now, 2 feet longer than in 1992, and tips the scale at more than 56 pounds, a gain of 15.

Unfortunately, Monica isn't nearly as happy about this reunion as Rivas. While we're putting her back in the sack, she manages to nip one of my fingers. It stings and bleeds some. "She bit you?" asks Rivas casually. "Now you're in the club." It's a mere nick, but I immediately begin thinking up a story to tell my two young boys: "And then the enormous beast clamped onto me, its fangs burning my flesh like a thousand needles—no, a *million*—and as my blood drained, I wondered whether I would ever escape this horrid death-grip and see you again, oh my children."

Try as I might, though, I can't crank my imagination up to the level of many earlier South American travelers: "To venture into the haunts of the anaconda is to flirt with death. . . . Big ones—luckily rare—were known to seize cattle at times, and even to pick men out of canoes. . . . Their weird cries could be heard at night. . . ." That's the British explorer Col. Percy Fawcett.

Reports of gargantuan anacondas—60, or 80, or even 100 feet long— are common in South American chronicles. In his book *Snakes in Fact and Fiction*, James A. Oliver, former curator of reptiles at the New York Zoological Society, cites a Brazilian news item from 1948 about a 156-foot-long anaconda that fought a detachment of soldiers and knocked down buildings before it could be

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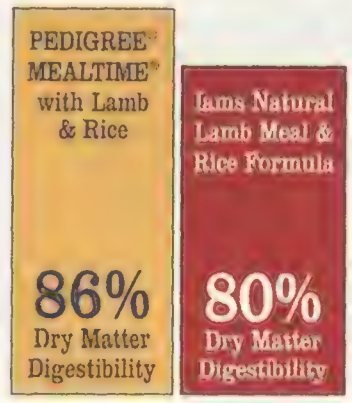

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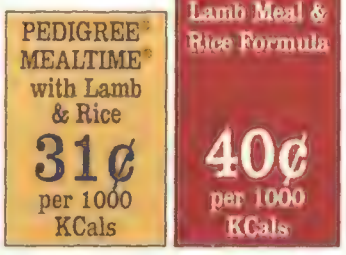

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In the inventory on every captured snake, Rivas carefully records the unique scale pattern on the tail.

Rivas uses twine to measure length. The typical male is 7 to 10 feet long and weighs from 10 to 20 pounds.

subdued. Oliver and others do credit an account from the 1940s of a snake 37 feet long, though some herpetologists doubt it. What's certain is that anacondas longer than 20 feet are rare. So far, the longest caught by Rivas and Muñoz has measured 17 feet. The heaviest, a roly-poly 15-footer, weighed 215 pounds.

"Man-eating" anacondas are legion in South American lore and literature. Once, when I was in Brazil's Mato Grosso, a government official solemnly handed me some photographs purporting to show the remains of a man, a sneaker and a belt inside a big anaconda. A farmhand in Brazil's Pantanal, a landscape similar to the Llanos, told me that he had helped save a fisherman from a 25-foot anaconda that lunged at the man from the water and crushed several of his ribs. An adult female can swallow prey at least equal to her own body weight, so such stories are conceivable, but somehow they never seem to get verified by reliable authorities.

Yarns also abound about the snake's hunting methods. In their forthcoming book, *Tales of Giant Snakes: A Historical Natural History of Anacondas and Pythons*, John C. Murphy, research associate at the Field Museum in Chicago, and coauthor Robert W. Henderson relate stories about anacondas sucking in prey from 50 feet away. The *llaneros* firmly believe that an anaconda can bite a bull on the nose, knot itself around a tree and stretch to the thinness of a twig until the bull gives up, whereupon the snake squeezes the exhausted bull to death. They also believe that anacondas eat children.

"I've been told many times that when a man sees an anaconda, he must kill it," says Rivas. "It's almost a duty. And if he sees one passing in a flood, he must curse it and throw stones at it or *he* will be cursed." This deep fear and antipathy has meant death for many snakes, but it may also have saved the anaconda from being heavily hunted. Rivas has never seen a *llanero* wearing anything made from anaconda skin: "They think anacondas are creepy and evil."

But there have been some changes. "When we first came here," says Muñoz, "nobody would tell us anything, but now they all help us and tell us where they have seen snakes. They also know that tourism brings in money, and that tourists like to see anacondas."

The next morning, we once again head into the marshes with our poles to look for snakes. The proper technique is stomp-poke-bounce, dubbed by Muñoz "the dance of the *culebras* [snakes]." It's hot, tedious work, and quiet except for the crunch of dry hyacinth leaves, the suck and slurp of the muck, and occasional wheezy barks from capybaras or cries from southern lapwings. About an hour into the search, Muñoz jabs an anaconda buried in the mud and calls me over so I can find out how it feels. But the snake has another lesson in mind, suddenly making a huge commotion in the brown water. "*Qué grande!*" shouts Muñoz, quite accurately. "*Qué bonita!*" she adds, more debatably.

It's a female that turns out to be 12 feet long and nearly 60 pounds. She strikes at us, giving a vivid demonstration of the anaconda's ability to open its jaws 180 degrees and startle the bejesus out of a reporter. She's an unpregnant female, just what Rivas and Muñoz want to implant with a transmitter. They high-five each other. (They learned how to tell pregnant snakes from unpregnant ones with the help of a local gynecologist, who at one point did sonograms on some large females, to the distress of several women in the waiting room.)

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The next morning, using the drain board on the kitchen sink as an operating table, Rivas surgically implants a transmitter in our unpregnant female, which is named after photographer Braasch's wife, Mary Jo. While Muñoz and I try to hold the snake still, he injects anesthesia along her spine, then makes an incision and inserts a transmitter.

Eventually ten females and four males will receive transmitters, each working on a different frequency. Rivas will track the bugged snakes by boat, horseback and foot to collect information on their dispersal during the wet season. Six of the females implanted thus far are breeding and probably pregnant. A big female may drop 70 live babies (82 is the largest clutch on record) weighing about one-half pound each. Rivas intends to recapture the pregnant females in mid-September before they give birth, then take blood samples from every baby. He will compare these samples with those of the males he caught wooing the mother. DNA analysis will tell him whether anaconda clutches are the result of single or multiple paternity.

The fattest, the fittest or the fastest?

"If only one male gets to fertilize all the eggs, then maybe the selection is for size and strength," says Rivas. "But if others get to mate with her, too, maybe the one who produces the most sperm fertilizes the most eggs. Or maybe the first one to *find* the female gets to do it, and the selection is for chemosensory ability."

One thing the researchers have learned is that pregnant females in the wild don't eat for the entire six to eight months of gestation. They discovered this when they kept a pregnant female for observation and she seemed to be starving herself to death. The scientists were worried because in zoos pregnant anacondas do eat. Then one day the snake dropped her young, whereupon she immediately devoured seven ducks and chickens. Rivas ascribes the different behavior to different conditions. "To eat in the wild," he says, "pregnant females would have to kill their prey, and that would mean risking their body with their babies in it." This means that Rivas can insert a transmitter into a pregnant female orally instead of subcutaneously, which is easier on both parties. It stays in place until the snake defecates for the first time after giving birth and breaking its fast. (Transmitters are force-fed mostly to males, who then lead the researchers to breeding females.)

Herpetologists knew from captive anacondas that females are larger than males, but Rivas and Muñoz have found a radical size difference between the sexes in the wild. In the early days, Rivas kept a small anaconda as a sort of pet ("It used to bite me a lot") and assumed that it was a baby. "Now I know it was an adult male." He was misled because males in captivity can reach 90 pounds—four times heavier than the largest wild males—probably due to overfeeding.

Rivas has some theories about the wide size discrepancy between the wild sexes, its advantages and disadvantages. Large females are able to prey on a bigger range of animals, have fewer predators to contend with and, most importantly, can produce more babies. On the other hand, large predators need more food and suffer more injuries, because they tend to prey on bigger and more dangerous animals. As for the males, it may be more sensible to stay small in the wild, thus requiring less food and incurring fewer risks. But if bigger males get to mate more, then size does carry an important advantage. Cross-referencing his data on each male with the DNA analysis of the clutches will give Rivas a partial answer.

Late one afternoon, we find another breeding ball. When Rivas loses his hold on this female, she bites him. He growls but takes the opportunity to impart another lesson. "The first thing I learned about getting bitten was not to pull my hand away," he tells me, "because then the teeth tear your flesh. It's better to just let the snake bite and then grab the head. If it won't let go, I push farther *into* the mouth. It's counterintuitive but it works, because the teeth curve back, so if you push farther in, it loosens the snake's grip." He grins. "They hate that. When they open up to get a better grip, you can usually pull your hand out the side."

Now, to illustrate the anaconda's dental structure, he holds out his freshly bitten hand and points to a double half-oval of small red punctures. "This is from the upper jaw—here's the outer row of teeth and here's the inner row." He turns his hand over. "And here's the single row made by the lower jaw. As you can see, it's not such a bad wound. It's like needles. I'd rather be bitten by an anaconda than a cocker spaniel."

Rivas (opposite) treads barefoot through a hyacinth marsh in hopes of stepping on a lurking snake (above).

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Continued from p. 119

INTERNATIONAL TOURS

The Patagonian Andes of Chile and Argentina *January 11-26* Visit cosmopolitan Santiago and bustling Punta Arenas on the Strait of Magellan, glide on the glacier-fed waters of Lake Todos los Santos in Chile's Lake District and visit Argentina's famed glaciers.

La Ruta Maya: A Journey through Central America *January 17-27* From Altun Ha in Belize to the majesty of Tikal in Guatemala to the fascinating new excavations at Copán in Honduras, Central America offers an enticing array of Maya ceremonial sites, trade centers and cities to explore.

Big Cats of the Serengeti *January 26-February 10* As spring comes to the Serengeti, join a two-week safari that includes Africa's most beautiful lodges and nine nights in five-star private luxury tented camps.

Hong Kong to Singapore *January 28-February 10* Experience the timeless beauty of the great cities of Asia—Hong Kong, Bangkok, Ayutthaya, Chiang Rai and Singapore—and travel aboard the *Eastern and Oriental Express*, a deluxe train evocative of a bygone era of leisurely and stylish travel.

The Barrier Reef and the Blue Hole: Offshore Wonders of Belize *February 11-19* Explore the submerged world during escorted snorkeling trips and by glass-bottomed boat.

Caribbean Voyage: The Grenadines and the Windward and Leeward Islands *February 15-22* Aboard the *Yorktown Clipper.* Escape winter during a voyage to some of the loveliest islands in the Caribbean.

Underwater Treasures of Bonaire *February 15-22* Discover a spectacular array of exotic corals, as well as schools of parrot fish, angelfish, eels and groupers, on guided snorkeling excursions.

Baja Whale Watch: Baja California and Sea of Cortés *February 15-23* Aboard the *Sea Lion.* Watch California gray whales migrate to the protected lagoons of Baja California to breed, calve and nurture their young. For the more adventurous, enjoy the incredible experience of swimming with sea lions.

Red Sea Passage *February 15-28* Aboard the *Regina Renaissance.* Sail south from Suez to visit Luxor, the Valley of Kings, and Abu Simbel on the Upper Nile, St. Catherine's Monastery on Mount Sinai, the spectacular rock-hewn lost city of Petra, Cairo and the Great Pyramids.

Walks in New Zealand *February 16-March 2* This tiny country down under offers a variety of stunning natural settings to satisfy all levels of hikers. Our itinerary offers two of the most spectacular and leisurely treks in all New Zealand—the Abel Tasman Track and the Routeburn Track.

East African Wildlife Safari in Kenya and Tanzania *February 16-March 4* Safari to the heart of Africa and experience the natural majesty of Kenya and Tanzania as you explore the finest wildlife parks in the world. On the East African prairie, unchanged for centuries, you will observe great herds of elephants and prides of lions, and watch hippo families bathing in rivers.

U.S. & CANADA TOURS

Birding in South Texas *January 8-16* Each year millions of ducks, geese and songbirds travel the Central Flyway to spend the winter along the Gulf Coast and Rio Grande Delta. Enjoy the subtropical climate while learning about the joys of birding.

Winter in the Grand Canyon and Zion National Park *January 13-19* Cross-country ski through the magnificent landscape of the North Rim of the Grand Canyon and hike in Zion National Park.

Big Bend Natural History *March 1-9* Big Bend is one of the most remote and least visited of our national parks. This active program offers daily nature walks of 1-8 miles with a possible elevation of 2,000 feet.

Hawaii's Trails and Reefs *March 16-27* Explore the spectacular outdoor world of the islands of Kauai, Maui and Hawaii.

SMITHSONIAN SEMINARS

Concentrated study of specific topics

The Making of the Modern World: 1797-1997 (Pacific Grove, California) *January 4-8* From the days of the French Revolution in Paris to Kafka's shadowy Prague, explore the artistic and intellectual legacies of the past two centuries in Europe's cultural capitals.

Coral Reef Ecology (St. John, U.S. Virgin Islands) *January 15-20* Experience the timeless beauty of St. John in this snorkeling seminar. Considered one of the most serene natural environments in the Caribbean, St. John's complex coral reef system supports a diverse array of biological habitats.

Double Fugue: The Color in Music, the Sound in Painting (Washington, D.C.) *January 23-26* Explore the complex and provocative relationship between music and painting against the backdrop of Renaissance England and Italy through 19th-century Vienna and Russia.

Jewish History (Washington, D.C.) *February 20-23* Explore the range and richness of the Jewish experience across history and geography. Consider the essential question of what Judaism is: a culture, a religion, a people, or a body of customs and traditions.

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Old World Europe 15-night tours in *April, July and September* Tour Munich, Prague, Vienna, Budapest and Salzburg, each filled with baroque architecture, stately palaces, gracious squares and fountains, and outstanding museums.

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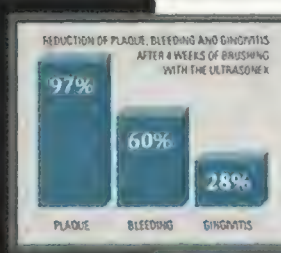

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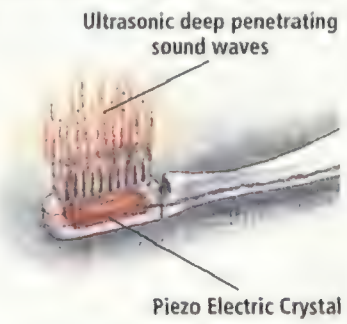

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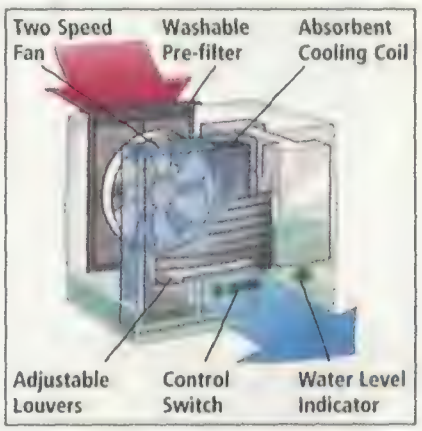

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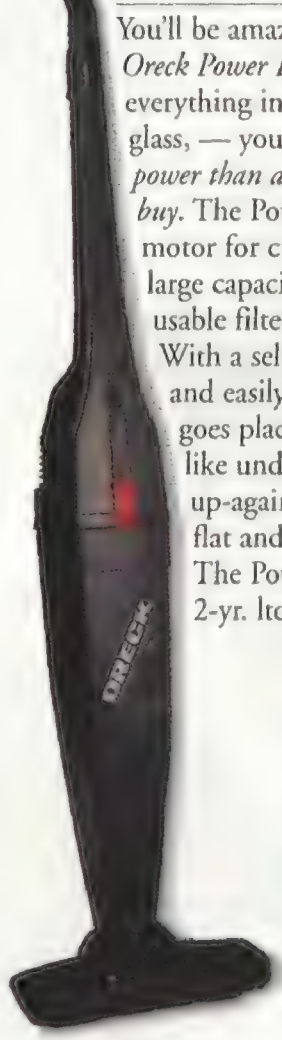

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The fight to save the places that tell us who we are

The National Trust for Historic Preservation has picked a dozen sites, each important to our heritage, that we may lose if we do not act

Central High School

In 1957, national attention focused on Little Rock's Central High School as federal troops were called in to protect nine African-American students integrating the Arkansas school. This pivotal event earned Central landmark status. Hailed as the most beautiful high school in America when it opened in 1927, the Gothic Revival structure has now fallen victim to time, use and urban flight. "In 1957, the integration of Central High School broke down racial barriers," says Trust president Richard Moe. "Today, deferred maintenance and structural problems have put up new barriers."

Historic Structures o

Early in this century, Great Northern Railway president Louis Hill saw the potential of a railroad line to the Pacific Coast that would link up with destination resorts. Urging passengers to "See America First," the Great Northern erected a series of unique buildings to entice visitors to the pristine

By Diane M. Bolz

The stories of the communities, factories, churches, schools, theaters, resorts and cities that have shaped our lives are an integral part of what defines us as a nation. When these places are lost, a piece of our shared history goes with them. Across America many of these sites are threatened with destruction, abandonment and neglect. Insufficient funds, lack of maintenance, inappropriate development and insensitive public policy are to blame. For the past eight years, the National Trust for Historic Preservation has issued an annual list of America's 11 Most Endangered Places to call attention to significant segments of our national heritage at risk. This year's roster includes a Victorian seaside hotel, a civil-rights landmark, an entire railway system and, in response to the spate of recent arson fires, a special 12th category—black churches of the South. "These sites show us how we worked, how we relaxed and how we interacted as a nation," says Trust president Richard Moe. "While not always well known, they give us a reference point to who we are, where we've been and where we're going."

Glacier National Park

peaks of Montana's Glacier National Park. Among these structures were the wood-frame Many Glacier Hotel (above) and a chain of backcountry Alpine chalets. Sadly, budget constraints have caused these buildings to deteriorate, imperiling a singular aspect of our national heritage.

East Broad Top Railroad

Climb aboard for a journey into the past—full steam ahead! Pennsylvania's East Broad Top Railroad (EBT) is the real thing: an authentic steam-powered narrow-gauge railroad, virtually intact. It's all there—cars and locomotives (including No. 12, above), 33 miles of main-line rail, bridges, roundhouse, depots, even a company town—much of it from the 19th century. When the EBT closed down in 1956, Kovalchick Salvage bought the system and opened a five-mile stretch to tourists. But costs far exceed income, and this living museum's priceless collection may have to be sold off.

Knight Foundry

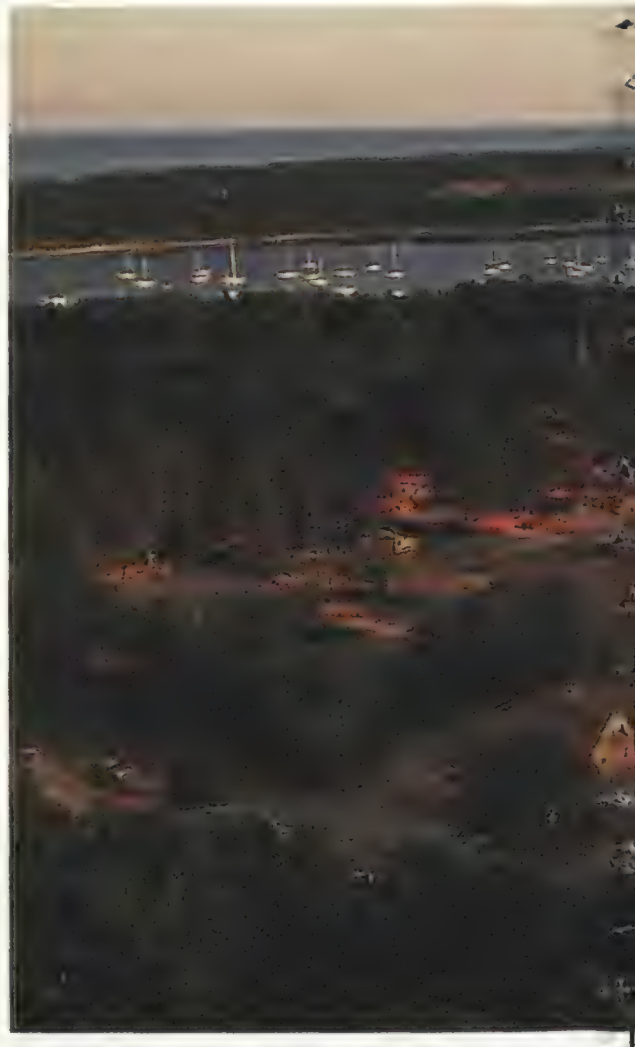
The interior of the rambling sheet-metal building on Eureka Street in Sutter Creek, California, is dark. The furnace is cold; lathes and planers collect dust. In December 1995, the historic Knight Foundry, created in 1873 to help supply the needs of California's Mother Lode mines, closed up shop. For more than 120 years, the foundry cast everything from hoists and water-wheels to sprockets and locomotive parts. Innovation enabled the foundry to adapt to changing needs, but economic conditions finally forced its closure. Reopened by a local friends group eager to develop it as a working historic site, Knight closed for good last year when the group's lease ran out, leaving in question the future of America's last water-powered ironworks.

Black Churche

The morning after the fire, a deputy stood guard at the Rising Star Baptist Church (above) in Greensboro, Alabama. "I just saw red flames," recalls Cornelia Chavers, 76, a longtime member of the congregation. "It was too devastating to watch." Chavers sold bags of peanuts to help raise money to build the original small wood structure that went up in 1931; years later it

Truman District

When former President Harry S Truman returned to Independence, Missouri, after leaving the White House, he regularly took brisk, early morning walks from his Victorian home at 219 North Delaware Street (left) through the surrounding neighborhood of his youth. The friendly ambience of this quiet residential area embodied many of the qualities that historians have attributed to Truman himself. But were he to walk these streets today, he would find them very changed. To the steady march of parking lots, nondescript new construction and inner-city decline, the Harry S Truman Historic District is rapidly losing the stable, small-town character that framed the life of our 33rd President.



of the South

was faced with brick. Now the brick is all that remains. Since January 1995, more than 60 black churches have been lost. This year the National Trust broke precedent in adding this 12th category to the top of its list. "These churches are the heart and soul of their communities," says president Richard Moe. "The need to mobilize support for them is urgent."

Sotterley Plantation

From its perch overlooking the Patuxent River in Maryland's St. Marys County, Sotterley Plantation has witnessed three centuries of Tidewater history. Established c. 1710, it was once a self-sufficient tobacco plantation, a Colonial port of entry, a busy steamship landing and a key player in the economy of southern Maryland. Its graceful manor house (above) is a premier example of early Tidewater architecture. An 1830s slave cabin sits nearby. Since 1961, the 42-acre site has been open to the public as a living lesson in history, but inadequate funding and disrepair are conspiring to close its gates. Volunteers have managed to maintain limited visitation, while trustees, including descendants of former owners and slaves, seek support.

Wentworth

For well over a century, the turreted silhouette of the once-grand Wentworth By The Sea Hotel has dominated the shoreline of New Castle, New Hampshire. In its prime, this sprawling, wood-frame Victorian resort, built in the 1870s, offered guests amenities such as tennis, golf and a saltwater pool. A favorite destination for American families, the retreat played host as well to film stars and Presidents. In 1905, it housed the delegates to the history-making negotiations that ended the Russo-Japanese War. But time is running out. Closed since the early 1980s, the hotel is facing demolition. Supporters have only until October 1, 1996, to find a buyer willing to rescue this monument to leisure and peace.

Adobe Churches of New Mexico

Nearly one-third of New Mexico's 362 catalogued earthen churches are severely damaged or in danger of collapse. Many others are threatened. Cornerstones of their communities and symbols of the profound spiritualism of the Hispanic settlers who built them, these unique structures have seen generations of baptisms, weddings and funerals. But years of harsh weather and poor maintenance have taken their toll. One success story is San José de Gracia (above) in the tiny village of Las Trampas. Without annual remudding, however, it, too, will begin to turn back into the earth from which it came.

Petoskey, Michigan

"City of the Million Dollar Sunsets," Petoskey, Michigan, was recently listed as one of America's best small towns. Hugging the edge of Little Traverse Bay, the picturesque community (originally settled by the Odawa Indians in the 1740s) gained fame as a summer resort in the 19th century. But now the onetime home of Ernest Hemingway is facing the combined scourge of retail, roadway and residential sprawl—a looming threat to the town's historic character and pastoral setting.

Uptown Theatre

"One of the Great Art Buildings of the World—An Acre of Seats in a Magic City," proclaimed the marquee of Chicago's Uptown Theatre on opening day in 1925, as an estimated crowd of 12,000 waited for the second show. Designed by the architecture firm of Rapp & Rapp, the lavish, larger-than-life movie palace once anchored a booming entertainment district just six miles north of the Loop. In its heyday, the Uptown offered patrons stage shows and an orchestra in addition to Hollywood's latest movies. Covering most of a city block, the 4,300-seat theater, which cost more than $4 million to build, was one of the largest and most palatial in the United States. Passing through the soaring eight-story facade, theatergoers were transported to another world as they entered the elaborately embellished grand lobby (right), rendered in a unique combination of Spanish baroque and Renaissance styles. But in 1981 the Uptown went dark for good, leaving the door open to years of neglect, water damage and vandalism. Recently, a local volunteer group, Historic Uptown Theatre, Inc., has been paying the heating bill in an effort to halt further deterioration, but millions of dollars are needed to purchase the theater and begin stabilization and restoration of this once-glittering memento of a bygone era.

East End Historic District

In 1952 *Look* magazine named Newburgh, New York, one of its ten all-American cities. Forty years later, a depressed local economy and misguided urban renewal have left this city of 26,000 an economic wasteland, plagued by abandonment and deterioration. But the Hudson River community, founded in 1709, has an invaluable resource. Its East End Historic District, the largest in New York State, is a showcase of American history and design, encompassing works by luminaries such as Frederick Law Olmsted and architect Calvert Vaux. Examples of every major style from Georgian to Art Deco chart the city's development. Newburgh also boasts America's first publicly operated historic site. Projects such as Lander Street (left), where 15 rowhouses are being rehabbed into affordable housing, offer hope. Mayor Audrey Carey is optimistic. "There's a good buzz throughout the community these days," she says. "People feel a sense of ownership and pride."

Rob Fleisher, Santa Barbara, California.

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It's Amazing What We Can Do Together.

By Robert Wernick

Rising from the sea, the mysterious handwork of giants

On the tiny Mediterranean islands of Malta, massive megaliths constitute a singular treasure: the oldest freestanding stone monuments

As imposing and enigmatic as Stonehenge, but far more ancient (dating from 4000 B.C.), main complex of Hagar Qim stretches for ten acres on Malta. Gateway at the far right offered entrance to temple precincts.

Malta is the smallest of European nations. Its three small islands add up to only 123 square miles of stony soil and 375,000 inhabitants, dropped into the blue waters of the Mediterranean just south of the boot of Italy. But the place and its people have a habit of thrusting themselves to the center of the world's vision every 500 years or so. Here, in 1565, the Knights of St. John of Jerusalem, now known as the Knights of Malta, saved western Europe by beating off a Turkish armada of 200 ships and 30,000 men, colossal for its day, in a four-month siege (SMITHSONIAN, January 1982). Here, between 1940 and 1943, a handful of British soldiers, sailors, airmen and Maltese civilians held out against everything that the Italians, and then the Germans, could throw at them. At one time their air defense was reduced to three Gloucester Gladiator biplanes named Faith, Hope and Charity. They were down to only a few days' supply of food and gasoline when the battered

remnants of a relief convoy made it in from Gibraltar. But they kept Hitler from getting the supplies across the Mediterranean to Rommel's Afrika Corps that might have won the war for him.

Now the Maltese, much to their surprise and to that of the learned world, are beginning to realize that they played a major role at another turning point in history. This one took place several thousand years ago, long before there were historians in existence to record it. Only some battered physical traces remain to bear witness. The most imposing can be found on the island of Gozo, just northwest of the main island of Malta, in the huge stone remains of a building to which the local peasants long ago gave the name Ggantija, the Giant's Tower.

Imposing walls, immensely ancient

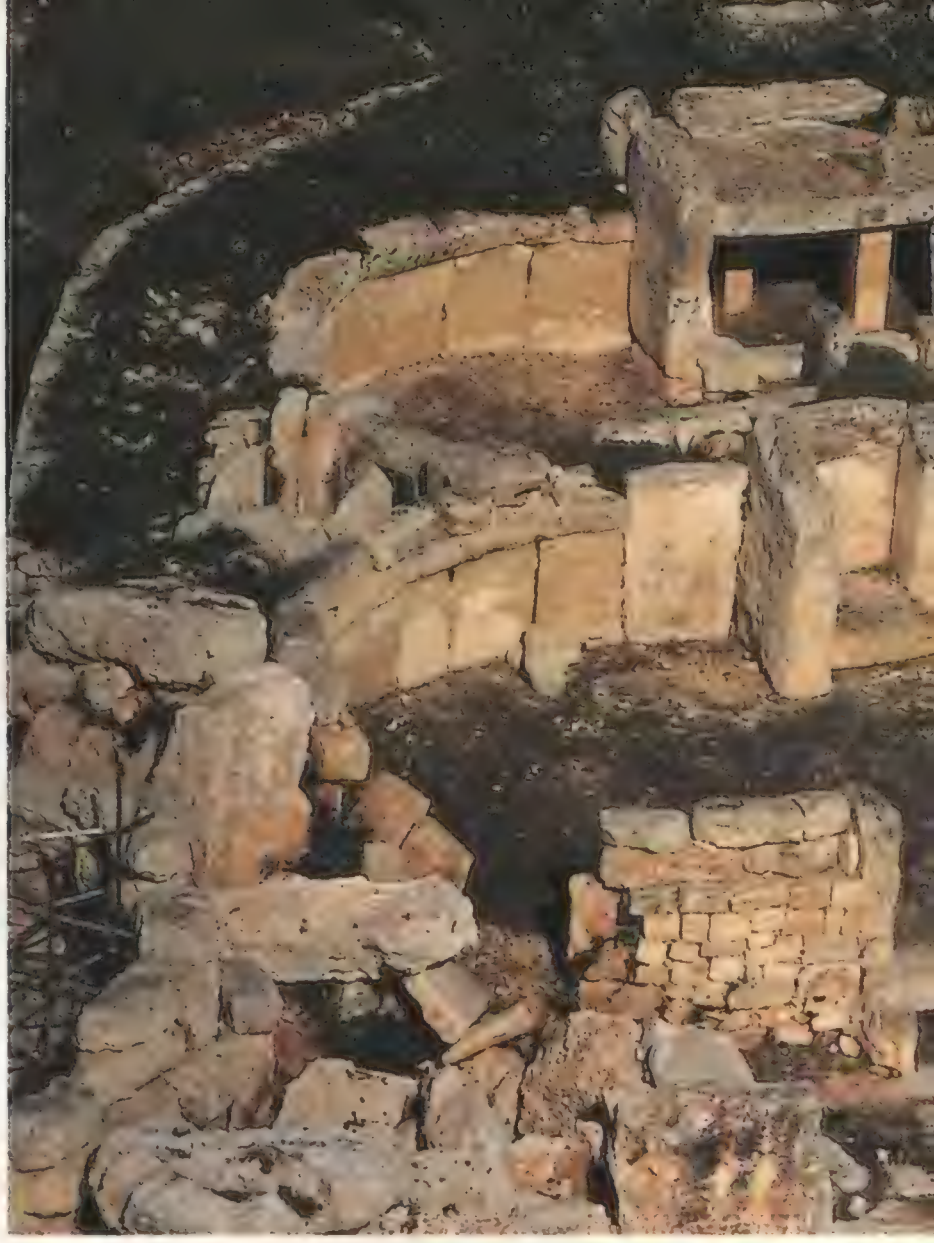
Rising abruptly at the edge of a barren plateau, the tower's scarred and jagged rock walls seem immensely thick and immensely old. They are in fact immensely old, part of a cluster of buildings spread over a ten-mile radius that, according to the latest scientific calculations, are the oldest freestanding stone monuments on the face of the earth. Just short of 6,000 years old, they antedate anything we think of as an advanced civilization.

More than 30 similar structures have been found on Malta and Gozo, and others are surely buried under villages and city streets. At least four—the Giant's Tower on Gozo, Hagar Qim (pronounced HAD-jar IM), Tarxien (TAR-shen) and Mnajdra (NY-dra) on the main island of Malta—are of a size that would be considered impressive anywhere on earth. Some of the stones of which they are built weigh more than 20 tons.

More amazing than this imposing bulk is their location. What are they doing in Malta, a little clump of land in the middle of the sea with no natural resources to speak of, and which 6,000 years ago was even more out of the way than it is today?

It is a wonder that they have survived. They are all in ruins, largely obliterated by the buffeting of wind and rain, and the ceaseless pillaging by local peasants who have quarried them for the stone walls that divide and terrace their fields. The Giant's Tower walls, now some 20 feet tall, may be only half their original height. Yet the ruins are wondrous enough. We can hardly imagine the awe the structures must have stirred in those who first saw them rising stone by stone out of the ground. Nothing like them had been seen before by human eyes.

Men and women had been scratching at the earth for hundreds of thousands of years before that, leaving little trace of their presence but scattered axes, beads, fossilized bones and oyster shells. Malta, apparently, was the first place where they left a permanent mark, a monument (which in Latin means something to remember), something that would rival the changeless mountains and



Aerial view of the Mnajdra temple complex, adjacent to Hagar Qim, reveals the elaborate cloverleaf layout.

Stone carvings abound at the monuments: a fertility goddess (above) at the Tarxien temple once stood 8 feet high but lost her torso to centuries of heedless quarrying; a sow suckles piglets at Tarxien (below).

At Hagar Qim, portal opens onto a chamber containing limestone blocks; some slabs may have been altars.

forests through which they and their ancestors for thousands of generations had been slowly making their way.

We are so used to public buildings now, from post offices and county courthouses to St. Peter's in Rome and Disney World in Orlando, that it is hard to imagine humans existing without them. But for a million or more years we did just that. During that time, people developed considerable skill in construction work, building themselves sturdy homes of timber or mud or clay, soon to be burned or blown away by the winds of time. They learned to combine such homes into villages, the villages into towns. As the towns grew, it was no doubt inevitable that the residents would feel the need for more permanent, imposing and elaborate structures to serve political or spiritual ends, monumental structures that would overawe neighbors and give dramatic expression to their own identity as a tribe or a people.

Europe's megaliths, ringing a continent

Scholars long took it for granted that the first such monuments were raised by the first civilized societies in the valleys of the Nile or Euphrates or Indus rivers. The mighty megalithic (from the Greek *megas*, great, and *lithos*, stone) structures that extend in an arc around the coasts of Europe from Malta to Denmark—Stonehenge in England has always been the best known—were regarded as rude attempts by barbarians at the edge of the world to imitate the awesome, harmonious structures put up by the pharaohs and priest-kings of the East. This theory began to be shaky when modern methods of carbon-14 and dendrochronological (tree ring) dating kept pushing the date of Stonehenge and other creations of the distant north further and further back in time. Then, in 1972, Colin Renfrew, an English professor of archaeology, knocked previous theories into a cocked hat by calibrating older interpretations of the various tests and demonstrating that the earliest monuments on Malta, including the Giant's Tower, went unbelievably far back, to the beginning of the fourth millennium B.C.—many centuries before Stonehenge or the pyramids of Egypt or the palaces of Ur of the Chaldees.

Prehistory is full of insoluble riddles. It is unlikely that there will ever be an adequate explanation of why it was the isolated subsistence farmers and herdsmen on tiny Malta, and not rich, sophisticated Egyptians or Sumerians, who first had the idea of dragging 20-ton stones over the countryside and putting them together in shapes that we now call architecture. All that can be said in the present state of knowledge is that the first human immigrants to Malta came sometime around 5200 B.C., and that they must have come from Sicily because they brought Sicilian pots with them.

On a clear day you can see Malta from the mountaintops in Sicily, but that could have been little reassurance

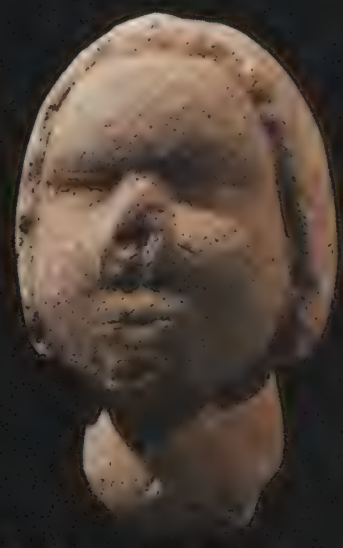
Treasures from Malta's past

Altar from Hagar Qim

Seated pair from Brochtorff Circle

Pottery from Tarxien

Sleeping Woman from Hal Saflieni



Head from Hypogeum

Stone frieze from Tarxien

for the first voyagers embarking on a fearsome adventure. They were setting off, packing provisions and seed grain and squalling children and nervous cattle into flat-bottomed boats—most likely, skins stretched over light wooden frames without keels or sails—for a voyage to an unknown land. They would traverse 60 miles of treacherous water, which the more experienced sailors of Homer's day—4,000 years later—were sure swarmed with sea monsters like Scylla and Charybdis.

Little remains of their home life in their new country except a very few stone foundations for their clay or mud-and-twig huts, and handfuls of stone tools, buttons, beads, broken pots. Most of these artifacts were handmade on the spot; a few apparently were imported from Sicily and other islands in the central Mediterranean.

In small isolated communities, without metal, without money and without any evidence of organized government, they kept themselves alive by growing emmer wheat and lentils, hunting red deer, making Sicilian-style pots, and probably—since a couple of clay spindles have been found—weaving garments from the hair of sheep and goats. There was nothing to distinguish them from any of the other thousands of communities then forming. All over Europe, Neolithic farmers and herdsmen were working their way, a few miles a year, from clearing to clearing through the primeval forests of oak and ash that covered the continent.

Then, after little more than a thousand years, the Maltese (we call them "Maltese" because we have no idea what they called themselves; "Malta" comes from a Phoenician word meaning shelter) experienced one of those sudden bursts of creative energy that punctuate human history and for which historians can never find really convincing explanations. They began to build megalithic monuments. They went on building them for more than a thousand years, eventually covering parts of their islands with a dense network of rock structures that towered over their fields and pastures.

The major monuments are not single buildings but elaborate complexes surrounded by a massive (up to 12 feet thick) external rock wall in the shape of a huge letter D. The flat base of the D is not a straight line; it is slightly concave, perhaps designed as a backdrop for processions or ritual drama. In the center is an entrance gateway composed of two big upright stones about 12 feet apart, with another huge flat stone laid as a lintel across their tops. This is the trilithon, the characteristic feature of megalithic construction in western Europe. The entranceway leads into a rectangular courtyard opening generally on three sides into semicircular apses or chapels, forming a cloverleaf pattern—there is not a straight line in the ground plan of these structures.

Frequent contributor Robert Wernick has written most recently on subjects from Reno to sound bites.

As one building period followed another, striking improvements in Maltese architectural skill developed. At the Giant's Tower, the outer walls are made of huge rough chunks of coralline limestone, outcroppings of which are found all over Gozo. The boulders come in all sorts of shapes and sizes, their weights going up to 20 tons. Their odd shapes are fitted together painstakingly to form solid walls. For the entrance, and some interior walls, the builders quarried and smoothed slabs of the softer globigerina limestone underlying Maltese soil.

The builders discovered that this limestone was ideal for their purposes. Soft and damp when it comes out of the earth, and easily worked with simple tools, it turns white and hard after exposure to the sun. In time, rain and the south wind carrying fine sand particles from the Sahara gave it a pleasing, honey-colored glaze. (This has remained to this day the characteristic color of farmhouses and city buildings of Malta, as well as the mighty 16th-century harbor fortifications of the island's capital, Valletta, which easily survived the Germans' daily bombings in World War II.) Rapidly learning the potentials of this material, the builders were able in a few generations to pass from the rough-hewn jigsaw puzzle of the Giant's Tower walls to the smooth, symmetrical, almost classical facade of the Hagar Qim temple complex.

Over rugged terrain, hauling huge stones

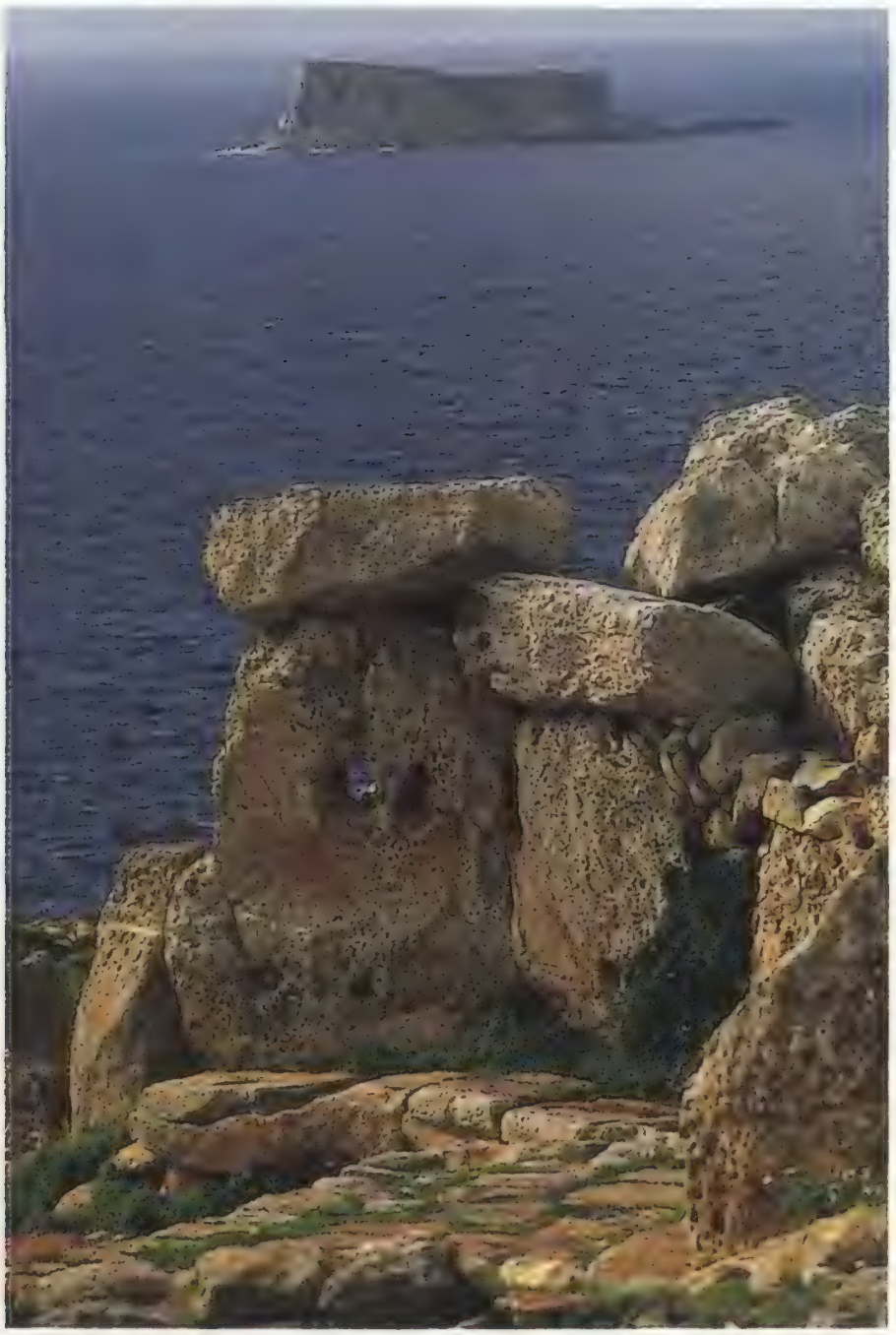
The sheer physical effort in such undertakings is impressive, but it is not superhuman and really is not even unusual. Primitive peoples all over the world have at various times felt the urge to raise up huge stones. Forty strong men can pull a 20-ton stone over rough country with ropes made of animal hides. The population of the islands in Neolithic times could never have exceeded a few thousand (estimates vary between 4,000 and 10,000) because that is all that the limited amount of farmland and pasture could feed. Not a large work force. But it has been calculated that 50 to 100 men working full time could have quarried the stones, hauled them with leather ropes over rollers made of tree trunks and set them into place at any of the Maltese sites.

What is really impressive is the intellectual effort and moral authority clearly required to conceive, design and erect these gigantic works. All the able-bodied men of the tribe or village would have had to be strongly motivated, working together at very difficult physical tasks that must have taken years, if not decades, to complete.

Because these early Maltese left no written records, no one can be sure what precisely the buildings were for, but archaeologists tend to agree that they must have been temples. Their layout suggests that of Christian churches, with a central nave surrounded by chapels. Some chapels have lintels over their entrances. Some entrances are blocked by huge stones with square win-

dows cut through them, suggesting that what lay beyond was a sacred precinct into which ordinary mortals might peep but not pass. Other entrances seem to have been blocked by stone screens—one screen is engraved with a pair of threatening eyes—or by wooden beams fitted into holes on the upright stones, perhaps to bar all but the proper attendants from the sacred precincts. Many of these interior spaces have solid blocks that look like sacrificial altars. Under one altar there is a kind of cupboard that could be reached by a hole blocked by a spherical stone. Inside the cavity were found charred bones and antlers, apparently of sacrificial victims.

Mysterious and beautiful decorative elements abound at the site. There is a carving of a snake in the entrance passage at the Giant's Tower—snakes who live underground with the dead were important figures in the rituals and beliefs of primitive peoples. There are carvings of a ship shaped like a flat-bottomed gondola, of bulls and rams in procession, birds and fishes, even a carving of a sow with 13 piglets at a Tarxien temple complex.



At a Mnajdra temple, jumbled stones looking out on the islet of Filfla evoke the site's mystery and scale.

Many pieces of sculpture have been found scattered around the temples, including tiny clay, alabaster and limestone figurines—some rough, some delicately naturalistic like the Sleeping Woman.

A huge limestone statue in a tunic, presumably a goddess, stands at the entrance to one of the Tarxien temples. It must have stood eight feet high when carved. Unfortunately, it survives only from the waist down, the torso long ago chipped down to make houses or fences or roads. Like many Maltese statues, it represents a form of more than generous proportions. Like many other prehistoric peoples, the Maltese evidently associated obesity with fertility, and these figures, disrespectfully referred to as "fat ladies," are generally taken as representations of a Great Mother goddess or fertility symbol, guarantor of the continuation of crops and of animal and human life.

Until very recently, artifacts could be moved around at ancient sites with random carelessness. Prehistoric bones were routinely ground up for fertilizer. My friend the Maltese painter Josette Borg says that when she was a little girl, she and her playmates used to trip down to a prehistoric temple and scoop up stones to build toy houses or sometimes throw at one another.

An awareness of the importance of the prehistoric sites has developed slowly, and only in this century. But this also has been the century in which, especially after World War II, half the farmland of Malta has been gobbled up by urban development, pulverizing many traces of ancient life in the process.

In 1902, when this urban sprawl was just beginning, a contractor was digging a cistern for some new buildings not far from the temple complex of Tarxien and stumbled across some ancient stone walls. He did not want his work interrupted so he kept quiet about his discovery till the buildings were finished. It was only after his picks and shovels had done immeasurable damage that it was learned he had uncovered the most stupendous architectural feat of the Maltese past.

The old builders had dug 18 feet down into the limestone to create a three-story maze of 33 interlocking chambers and chapels. Many rooms in this warren-like structure reproduced in precise detail features of the temples built aboveground in the previous centuries—trilithons, niches, semicircular chapels, altars and all. Archaeologists christened it the Hypogeum, or Cellar, and found that most chambers had been used for burials. Some 7,000 complete skeletons were found there.

There was nothing unusual about the actions of the contractor. The fact is that few people until quite recent times took any serious interest in isolated ancient monuments, apart from those of Rome and Greece and Egypt, except to use them as quarries. These structures were

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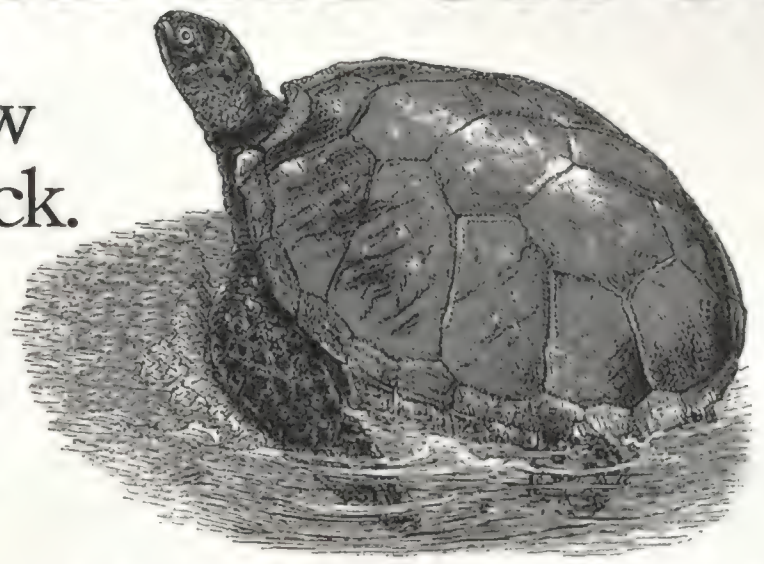

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Even today, stone quarries provide most of Malta's building materials: the islands' farmhouses, pasture walls, city structures and harbor fortifications owe their endurance to the plentiful indigenous limestone.

casually ascribed to giants, fairies, or perhaps Romans. No one for more than 3,000 years had thought the giant stone rings of Avebury in Wiltshire worth a second look, until the curious antiquarian John Aubrey rode by them while out hunting one day in the middle of the 17th century and started the modern interest in megalithic monuments. As recently as a hundred years ago, tourists visiting Stonehenge expected to knock out chips from the slabs to take home as souvenirs. For this purpose, a handy mallet was suspended by a rope from one giant upright. Now everyone wants to save what is left of these monuments. UNESCO last year put the Malta temple complexes on its list of irreplaceable world treasures, to be preserved at all costs.

The trouble with the archaeological record is that it contains only imperishable materials, like stone. What is clear is that the Maltese went on building temples, making their offerings to the fat ladies and piling the bones of their dead neatly in chapels, until, suddenly, they stopped. No one knows why. It was about 2500 B.C. The archaeological record is broken off sharply.

When it resumed a couple of centuries later, everything was different. There were no more temples, no more fat ladies. The Bronze Age had begun. There were new people on the land, less cultivated than the original Maltese. Not indulging in great communal efforts like temple-building, these new people in some ways were technologically more advanced, especially in the arts of combat. The peaceful villages were replaced by armed camps built on headlands that could be defended from new seaborne invaders. The new inhabitants burned their dead and buried their ashes along with their swords and shields, sometimes in the courtyards of abandoned temples. A way of life that had endured almost 2,000 years simply disappeared.

That is one Maltese mystery. Another is why the ancient Maltese seem to have done their work in splendid isolation. Some researchers have proposed that Malta became a great religious center, like the island of Delos in what would later become Greece, attracting pilgrims from all over the Mediterranean. Others hypothesize it must have been a great commercial center, a prehistoric Singapore or Hong Kong. Unfortunately, there is no physical evidence to support either view; there is no evidence of outsiders visiting Malta during those 2,000 years.

With the arrival of the Bronze Age people, Malta's isolation ceased. Ships had keels and sails, long sea voyages were commonplace; merchants and pirates (generally a combination of the two) recognized Malta's strategic importance. (The island offers a deep harbor and a marine watchtower at the narrowest point in the Mediterranean.) From then on, the history of Malta has been the story of struggles to control it. Romans fought Carthaginians; Normans fought Arabs. Holy Roman and Byzantine emperors, Muslim caliphs, French counts and kings of Aragon laid claim to it.

The heroic defense against Suleyman the Magnificent's Turkish fleet and 30,000 soldiers in 1565 made the Knights of Malta famous. The knights were given sovereignty over the island. Lavish gifts from Christian

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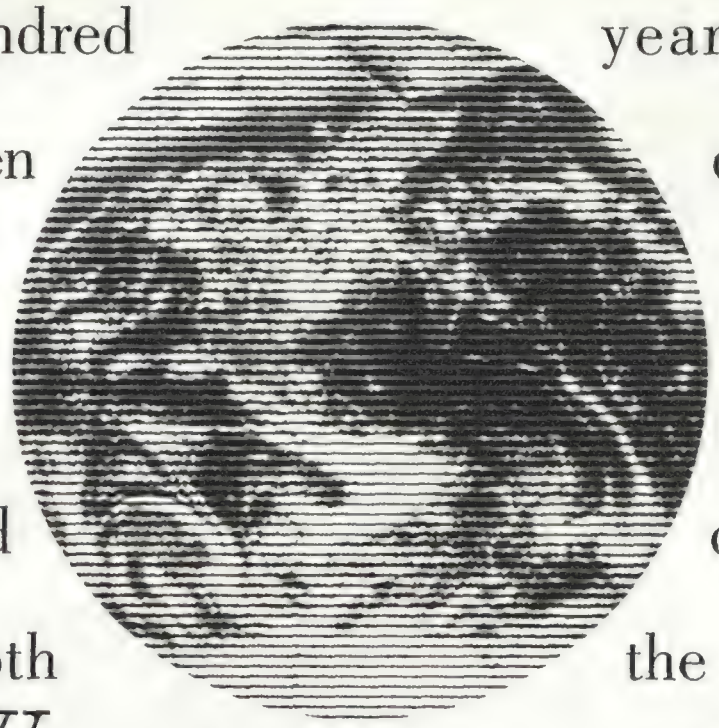
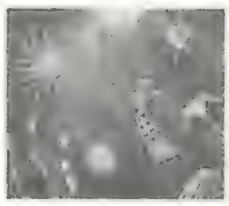
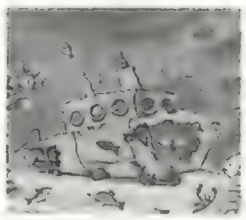
We at Nippon Steel have been using iron to make steel for over one hundred years now. Steel has always been  our forte and steel technology our greatest strength. Time has turned us into the world's largest producer, and our products will more than satisfy both the present and future needs of industry. We are also expanding our  business in many new directions. Using the know-how and skills we have  amassed over the years, we are entering new fields of opportunity that include engineering, electronics, semiconductors and new materials. We invite you to explore the "Wonder of Iron" series on the Web. You will find us at **http://www.nsc.co.jp**

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kings throughout a grateful Europe enabled the knights to build the richly decorated churches and palaces that dot the land to this day, helping to make it an extraordinary tourist attraction. Late in the 18th century, Napoleon grabbed Malta in his effort to throttle the British Empire, but Horatio Nelson took it back. And British it remained for more than a century and a half, as a vital link on the sea routes that held the empire together.

Not till 1964 did the Maltese people, for the first time since 2500 B.C., acquire sovereignty over their own land. At the time it was estimated that, one way or another, more than half the working population labored for the dockyards of the British Navy. When the Navy left, economic decline and disaster were predicted. Instead, in 30 years Malta has turned itself into a busy, prosperous, peaceful little republic, the envy of all its neighbors, if only because the unemployment rate is near zero.

Francis Vassallo, governor of Malta's central bank, spent 18 years in America, and when he came home in 1993, prepared for the culture shock of re-entry into a Third World economy, he found a people who had mastered the techniques of offshore banking. They had also diversified their agriculture, concentrating on high-priced specialty crops, such as February potatoes. And the Maltese had shifted the island's industrial emphasis from textiles to computer chips, an effort that has fired parents with the ambition to equip their children with personal laptops by the time they leave school.

In the 10th century the Maltese expanded their agriculture, introducing lemons and other crops from the Middle East. In the 19th century they adapted as successfully to British commercial-industrial culture. They still build in stone, though the result may be the grand marble staircase leading to the new Burger King in Valletta. The tourist who is tired of temples can find, only a stone's throw away, soundstages where state-of-the-art animation and special effects provide the background for such movies as *Popeye* and *Raise the Titanic!*

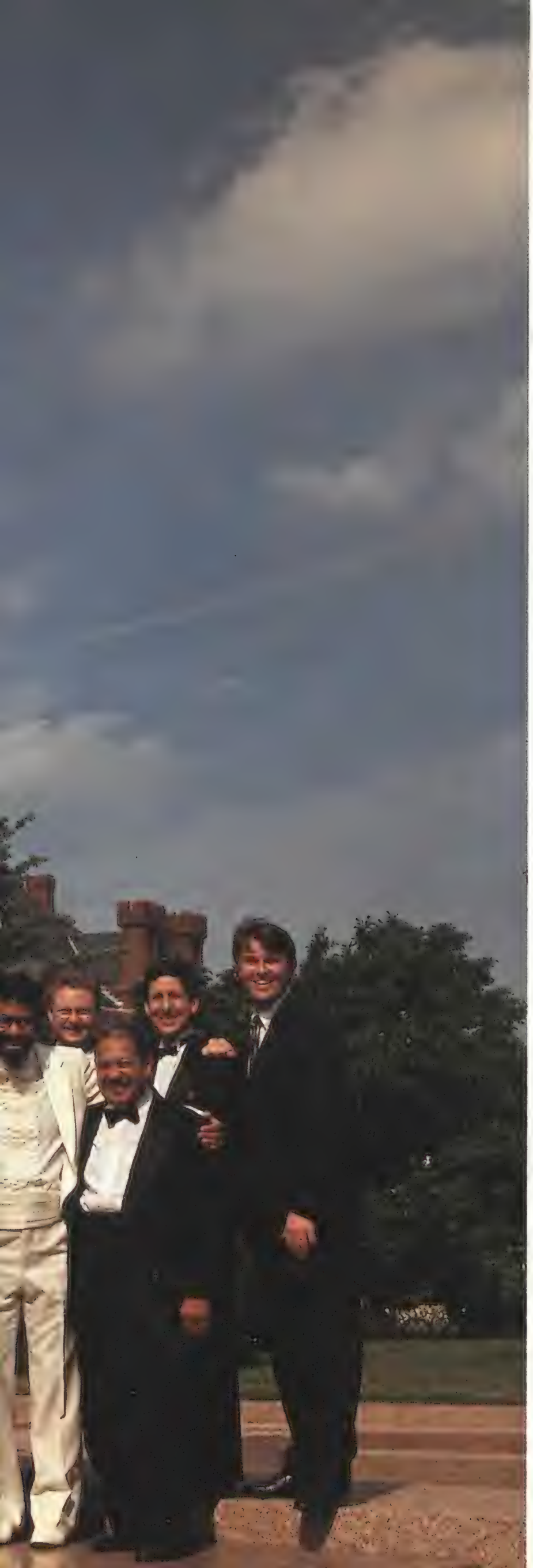
Tourism booms, partly due to archaeology, now recognized as a national resource of the first importance. For eight years, an Anglo-Maltese team from the Universities of Malta, Cambridge and Bristol conducted a major dig on Gozo. In the past seven years, thousands of bones, terra-cotta figurines and stone idols have been found in the caves. Among the most intriguing is a limestone statue of two fat figures seated together, one holding a doll-like figure, perhaps a child.

It will take years of study to do justice to it all. With luck, the archaeologists will be able to shed light on some of Malta's prehistoric mysteries—not only why the people built in isolation, but whether or not the ancient Maltese, the temple builders, were somehow wiped out. Archaeologists, and the Maltese people as well, wonder if the blood of the ancient Maltese builders still flows in the veins of the people walking down the streets of Valletta. Some prehistorians think the original inhabitants were simply put to the sword or carried off by Bronze Age invaders, in much the same way that the inhabitants of Gozo were rounded up by Suleyman's invasion force and sold into slavery. Perhaps DNA testing of ancient bones in the Brochtorff Circle, a burial complex on Gozo, will one day produce an answer.

Valletta, Malta's thriving capital, occupies a strategic harbor coveted for centuries by successive invaders.

The Maltese of today are the inheritors of many cultures and characteristics, and many centuries of achievement. All the invaders left their marks—the Arabs, their language; the Knights of Malta, their magnificent architecture; the British, parliamentary democracy and a first-class educational system. This is a modern land with one automobile for every 1.7 of the 375,000 Maltese (though just one traffic light for every 37,500).

Yet the people's deep, colorful and manifest piety has not changed: where once the land was covered with rock temples looming over the countryside, it is now dotted with rather grandiose churches—365 of them by last count—their big baroque domes and bell towers soaring above every village and cluster of city blocks. The churches are full, as the temples must have been. Everyone in Malta knows the story of what happened one Sunday in 1942 when 1,500 people were gathered in the church in the little town of Mosta. Mosta, it must be noted, has the third-largest dome in the world (after St. Peter's in Rome and St. Paul's in London). On that day in 1942, a giant German bomb crashed through the dome, hurtled down in the midst of the congregation, skidded along the marble floor till it hit a wall. And stopped, quietly, without hurting a soul.



By Chiori Santiago

When this jazz band plays, it's not just music—it's history

The musicians who make up the Smithsonian Jazz Masterworks Orchestra specialize in re-creating classic performances from the past

Even among aficionados of jazz, Boyd Raeburn is not exactly a household name, but back in the mid-1940s he was one of a handful of innovative composers and bandleaders who created the groundbreaking arrangements that contributed to the end of the swing era and the beginning of bebop. Right now, on the stage of the National Theatre in Washington, D.C., 20 musicians seated in rows of metal folding chairs are rehearsing one of his most challenging numbers, "Boyd Meets Stravinsky," which he recorded in 1946. Clad in shorts and T-shirts on this warm spring afternoon, they are sweating under the hot glare of the stage lights. At a signal from the conductor, they begin. A chorus of brass and percussion echoes in the empty hall. Afterward several of the instrumentalists agree that Raeburn's music ranks among the most difficult they have ever played.

That's saying a lot because few other jazz ensembles perform as much difficult material as the one to which these musicians belong. The Smithsonian Jazz Masterworks Orchestra (SJMO) was established in 1990 with an awesome mandate—to make the history of jazz come alive. That means re-creating the classic performances of many of the greatest ensembles ever—bands led by Claude Thornhill, Fletcher Henderson, Duke Ellington, Dizzy Gillespie, Count Basie, Stan Kenton. . . Sometimes referred to as "the jazz version of a philharmonic orchestra," the SJMO embraces a mind-boggling repertory that includes hundreds of important arrangements recorded from the 1920s through the 1970s, most of

Photographs by Bruce Caines

Conductor David Baker (seated) checks the notes of a transcription as a colleague listens to the recording.

them written to take advantage of the power and color that only a big band can provide.

In this respect, the SJMO is much like other jazz bands holding forth today. It's kin to the Lincoln Center Jazz Orchestra in New York, which preserves the music of important composers under the artistic direction of the ubiquitous trumpet virtuoso Wynton Marsalis. It's sister to the so-called ghost bands that continue to tour the country in the spirit of leaders who are no longer alive—Count Basie, Tommy Dorsey and Glenn Miller, among others. It has links, too, with the several outfits that are still led by their founders, including Lionel Hampton, Illinois Jacquet and Maynard Ferguson.

There's one big difference. The SJMO is the only jazz ensemble that is associated with a major museum, the National Museum of American History. This means, among other things, that whatever it plays must be an authentic re-creation of the original. Every time the SJMO musicians pick up their instruments, they're expected not only to present the music the way it's written or transcribed but also to emulate the style of the immortals who recorded it years ago.

Because the group's programs are so eclectic, it's not unusual for a concert audience to hear the signature music of a half-dozen different bands. If the program includes Ellington's "Mobile Blues," trumpeter Virgil Jones must resurrect the growling attack of Charles Melvin (Cootie) Williams, a stalwart of Ellington's band from 1929 to 1940. Baby-faced Greg Gisbert may have to duplicate the piercing high notes of Dizzy Gillespie's solo on "Manteca" or Miles Davis' breathy staccato on "Move." And on "Warm Valley," Shannon Hudgins, a reserved young woman from Seattle, must reincarnate the sweet, sliding notes of Ellington's longtime lead alto saxophonist, Johnny Hodges. Loren Schoenberg, who plays tenor saxophone in the orchestra when he's not leading his own band or teaching at the New School in New York City, sees the challenge in theatrical terms. "It's like you're an actor," he says, "and the director tells you, 'Tonight you're going to be Macbeth—and then you're going to be Ralph Kramden.'"

Such dedication to musical role-playing reflects the SJMO's charge, according to John Edward Hasse, who is the curator of American music at the history museum and a founder of the group. "Our stuff has to have a strong historical purpose," he says.

Conductor David Baker, head of the jazz department at Indiana University's school of music, is a prolific composer and the author of dozens of books on jazz. All of the SJMO musicians are freelancers. Many live on the East Coast but spend much of their time touring with other ensembles or traveling to and from gigs. The SJMO presents a series of 15 to 20 free concerts in Washington, D.C. each year, and it has played in cities across the country. After kicking off its sixth concert season in June, the group performed at the Olympic Arts Festival in Atlanta and also participated in the Smithsonian's 150th-anniversary celebrations.

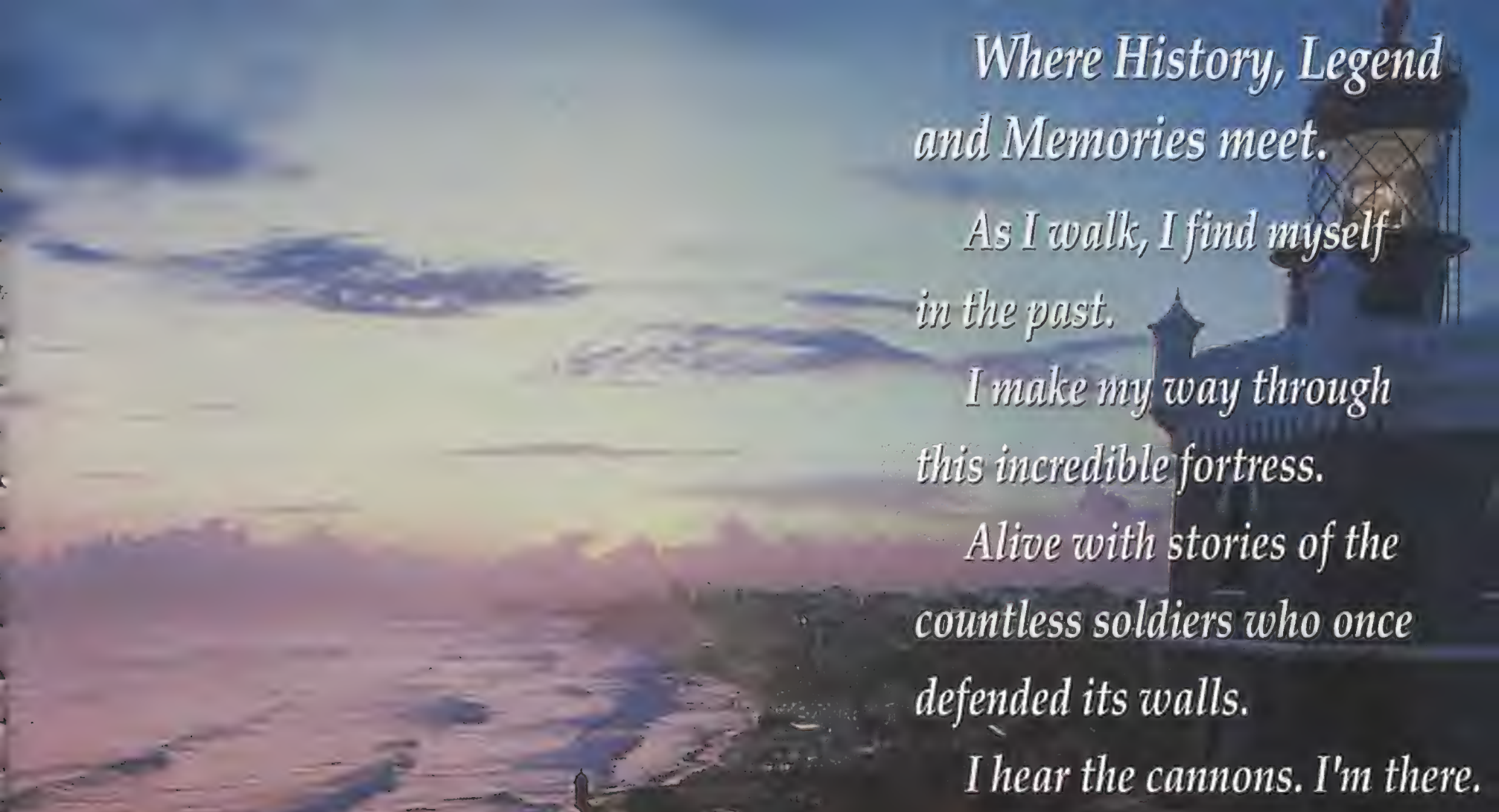
The SJMO's purpose, Hasse says, is summed up by a story he likes to tell about the critic who attended an SJMO concert featuring the music of Bennie Moten. In the early 1930s, Moten's band defined Kansas City jazz and established the reputation of a pianist named William (Count) Basie. As the critic left the hall, he heard a group of young people raving about the music. "They were saying, 'Isn't Moten great,' as if he were still alive," Hasse relates. "This is music that hasn't been played live for 60 years, but they were talking about it in the present tense. That's exactly what we want."

Certainly there was no way Buddy Bolden, a cornetist who helped pave the way, could have predicted that the "jass" he improvised at New Orleans' Funky Butt Hall in the 1890s would one day be heard by concert audiences around the world. Bolden played dances, picnics and parties, but eventually the scintillating new music became associated with New Orleans' red-light district and other rough parts of town.

Jazz was saddled with this low-life image for years. "It was black music," says 74-year-old Joe Wilder, who plays trumpet with the SJMO. "It was played by people who, since slavery times, weren't even considered citizens. So it's only recently that anyone's paid attention to its history, let alone put it on a par with classical music."

There are no recordings of Bolden, but he was known for his embellishment of popular ragtime and blues, the two musical streams that fed jazz. He didn't read music

Chiori Santiago has written about the tango and carillons. She got interested in jazz at age 12 when her dad gave her an album by Thelonious Monk.



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so he made it up on the spot, and the "moan in his cornet"—as one contemporary listener put it—was so riveting, so different from the "legitimate" music of the time, that an entire generation of instrumentalists felt compelled to follow his lead. Among them were trumpeters Freddie Keppard and Joe (King) Oliver. Oliver, in turn, tutored a kid from New Orleans named Louis Armstrong, who remains a pivotal influence not just on jazz musicians but singers of popular music as well.

If Bolden and his disciples got jazz off the ground, the subsequent development of the form should be credited to those who wrote it down, recorded it and exposed it to a wider audience. By the 1920s, for example, jazz bands all over the country were playing "St. Louis Blues" and many other standards written by W. C. Handy. Scott Joplin's widely published scores, such as "Maple Leaf Rag," popularized the syncopation of African folk music. Another pianist, Ferdinand (Jelly Roll) Morton, blended improvisational technique with ragtime and bragged that he had "invented jazz."

Morton did help set the stage for a musical era. Although jazz in those days was based on improvisation, his band's performances were carefully arranged. He created a written structure to surround the players' solos and suggested guidelines to keep the solos coherent, establishing a framework for an ensemble-based jazz that could be consistently reproduced.

Another watershed event occurred in 1924, when Fletcher Henderson hired Armstrong to inject some style into his dance band at New York's Roseland ballroom. Armstrong's audacious attack transformed the pleasant, predictable approach of the Henderson band into a fiery, innovative, more spontaneous sound. Even though Armstrong left only a year later, by then he had anticipated the arrival of the swing era, which began around 1935 and lasted until just after World War II.

Swing is the source of some of repertory jazz's richest material. It anchored the heyday of the big bands, when Duke Ellington, Jimmy and Tommy Dorsey, Artie Shaw, Count Basie and Glenn Miller reigned, and when clarinetist Benny Goodman was dubbed the "King of Swing." "In 1942 there were probably 300 big-name bands traveling the country," says David Baker. "Now you can count the number that are not ghost bands on one hand." What Baker tries to do in programming a concert is to give listeners a sense of the energy and life of those hundreds of bands, and also to illustrate their relationships in jazz's family tree. A concert might look

Harold Summey rehearses for a concert at Lincoln Theatre in Washington, D.C. Winner of a Thelonious Monk Institute Award, he has worked with such greats as Wynton Marsalis and saxophonist Sonny Rollins.

at the connections between the music of Tommy Dorsey and Jimmie Lunceford via the arrangements of Sy Oliver, or illustrate how postwar jazz became more global, embracing everything from Raeburn's take on Igor Stravinsky to Gillespie's use of Afro-Cuban rhythms.

"One of the strengths of the SJMO is that many of its people lived through those times and have a personal relationship with the music," notes producer James K. Zimmerman. Baker credits Gillespie as his mentor. Some of the musicians, including Joe Wilder and Britt Woodman, played with Lunceford, Basie and Ellington.

when the Lincoln Center Jazz Orchestra was founded.

That same year, the Smithsonian acquired Duke Ellington's archives. They comprised 100,000 pages of music, ranging from unpublished manuscripts to lead sheets to notations on scraps of paper, as well as tape recordings, photographs and 500 artifacts. Excited by the prospect of making that music available, Hasse and jazz enthusiast Fred Starr, then the president of Oberlin College, helped assemble a team of experts to get it ready for publication. Before long, plans were being made to publish pieces by Henderson, Lunceford and other important big bands

Joe Wilder, who played in the bands of legends Jimmie Lunceford and Count Basie, uses a toilet plunger to add color to the music. Horn man Virgil Jones (left) has played in *Jelly's Last Jam* and other Broadway hits.

Gunther Schuller, who shared the conducting duties with Baker until leaving earlier this year to pursue other interests, was at the forefront of the repertory movement. In 1972, while he was president of the New England Conservatory of Music in Boston, he started transcribing the music of Scott Joplin, Paul Whiteman and others. His series of Joplin concerts inspired jazz critic Martin Williams to develop a repertory band that performed at the Smithsonian and on tour in the 1970s. The National Jazz Ensemble and the New York Jazz Repertory Company were also organized in the '70s. By 1987, the American Jazz Orchestra was on the scene in New York. The movement got yet another boost in 1988, under the auspices of Smithsonian's Jazz Masterworks Editions. Roger Kennedy, who was then the head of the American History museum, thought it would be great to have an orchestra, recalls Baker. "So one day he says to me, 'We'd like you to head it.' Caught a lot of people by surprise, including me."

In 1990, Congressmen John Conyers, Louis Stokes and Sidney Yates helped secure an appropriation of more than $200,000 to fund the SJMO. Two years later, a grant to the Smithsonian from the Lila Wallace-Reader's Digest Fund made possible a decade-long initiative called "America's Jazz Heritage," which produces exhibitions, oral histories, teachers' guides, recordings and

Bassist Michael Bowie and Summey perform a small group piece from Miles Davis' *Birth of the Cool* album.

nationwide broadcasts of SJMO performances on "Jazz Smithsonian," a public-radio program. But funding remains a problem and today the orchestra depends heavily on the generosity of private donors. This year, for example, its summer season was made possible in part through the support of the Infiniti Division of Nissan Motor Corporation and the Recording Industries Music Performance Trust Fund.

The musicians arrive in Washington for intensive rehearsals just a couple of days before each concert. Presiding over this afternoon's rehearsal, Baker studies the score. "Trumpets, not so much separation when you come in. On the solo, it's your call, I trust you." He taps a sneakered foot as he listens, one hand beating the tempo in the air. "People get hung up on nostalgia and they start treating this music as if it's precious," he says later. "It is precious, but we need to breathe *life* into it." At one point during that night's performance, Baker will urge the respectfully quiet audience to snap fingers and clap hands. "When people just sit there and don't respond, I say, 'No, no! Don't listen to us as though we are an artifact. Listen to us and *react.*'"

Now the band is rehearsing selections from the avant-garde *Birth of the Cool* album Miles Davis recorded in 1949. Greg Gisbert is assigned to play Miles, and when the band reaches the point of his solo in "Move," he lifts the trumpet to his lips and blows. Then he stops, apologetic. "I listened to the tape," he tells the conductor. "But it's— too good . . . I don't know how Miles did it."

Gisbert gives it another try before it's time for a lunch break. The musicians walk over to a nearby restaurant where, between bites of falafel and chicken teriyaki, they console the crestfallen horn player.

"I was being honest when I said I didn't think I could play that solo," Gisbert says to pianist Russell Wilson and tuba player Joseph Daley. "I mean, I didn't approach the virtuosity of what Miles played."

"Hey, you can't play somebody else's life," soothes Daley. His expression is thoughtful. "You can play the notes. But Miles was playing a moment—and he had a lifetime of getting to that moment."

Musicians have mixed feelings about duplicating the old-timers' sounds. Some complain that it makes them feel like robots. Others, like Shannon Hudgins, happily go to great lengths to re-create the original. "I spend incredible energy preparing, picking off the exact articulation, every place Johnny Hodges scooped a note."

Saxophonist Schoenberg is one of those who believe that the issue of improvisation is over-romanticized. "Jazz is associated with letting it all hang out but most of it does not come off the top of your head," he insists. "In reality, you spend your whole life editing solos in your mind. You can spend years working on a solo.

"The greater an improviser you are, the more you'll appreciate the improvisation of someone else, and accept the challenge of occasionally replicating it. You think, gosh, how did Ben Webster *do* that? How does it feel to have that sound come out of your horn?"

Brent Wallarab plays the trombone for the SJMO. He's supposed to be relaxing with his girlfriend in California, but instead he's spending most of his vacation in front of a tape recorder, listening to Ellington's "Hodge Podge" at half-speed and picking apart the orchestration, line by line. Since most historic jazz exists only on old 78 rpm records, someone has to transform it into sheet music—and Wallarab's just been told he must prepare six compositions in the next ten days.

"In the old days, those musicians didn't know they were making 'art.' They just went from gig to gig," Wallarab says. "They'd memorize the material and throw the sheet music away, so there's not much around anymore, except recordings. A lot of what's on those old recordings are arrangements musicians came up with in their heads, on the bandstand. Then it became part of the repertory, but it was never written down."

There are times, Wallarab says, when he has to make educated guesses. "It's when I can't quite hear what's

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going on. Let's say you have five saxes, four trumpets and four trombones all playing at the same time. There's just no way that you can always hear what the third trombone is doing." Using his knowledge of various arrangers' styles, he pieces together the transcriptions as accurately as he can—right down to the mistakes. One Tommy Dorsey recording, for example, features an up-tempo trumpet solo in which the player shoots for a dramatic high E at the end. "He doesn't get it," says Wallarab, "but I know he intended to play that note, so I put the high note in parentheses. When we play it, the conductor will probably have the musician go for the E, even if it's not on the recording."

The members of the SJMO are devoted unconditionally to their music. It fills their conversation and preoccupies their every waking hour. After rehearsal one night, half of the SJMO's horn section eagerly crowds into booths at One Step Down, a pocket-size jazz club, to hear their colleague Keter Betts caress the bass with his quartet. During a break, saxophonist Steve Wilson, who at 35 is one of the youngest members of the orchestra, recalls how he started off playing a toy drum as a kid. Now, he says, he still can't believe that he's sharing the stage with some of his childhood heroes, including trombonist Benny Powell, pianist Sir Roland Hanna and trombonist Britt Woodman. "You don't go into jazz to get rich and famous," says guitarist James Chirillo. "All of us still play at weddings and tea parties because it's a chance to get paid for doing what we love."

Tonight, backstage at the Lincoln Theatre, the SJMO begins "improvising" its usual pre-concert overture. It consists of the sound of instruments chasing scales and the soft shuffling of tuxedo-clad musicians pacing back and forth. Hidden from the audience here is a clutter of tangled extension cords and instrument cases. At 8 o'clock the band members take the stage.

The first notes of "Mobile Blues," written by Ellington and Cootie Williams, float over the hall. Six rows back from the stage, a man begins to sway in his seat. By the time the orchestra lays into Hodges' "The Jeep is Jumpin'," so is the audience. The band glides from "Jeep's Blues" to "Moon Dreams" to "Move." Everything is coming together now. The band is cooking, the audience is digging and the history of jazz is alive and well. On the back riser, a lone trumpet player stands, awaiting the cue for Miles.

Baker gets into the groove during a concert featuring the music of Sy Oliver, at the Lincoln Theatre. "I do all the things the music makes me do," he says, "what the audience would like to do if the seats weren't in the way."

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Computer-generated images helped the people of St. Paul decide on one of three possible bridges.

By Phil Patton

To build a bridge, you must cross troubled waters

When St. Paul needed to replace a bridge at a historic crossing of the Mississippi, just about everyone in the city had an opinion

A biker in an orange windbreaker pedals happily along, passing a pedestrian in front of a daring bridge across the Mississippi River: two great masts rise in a V shape against the blue sky, cables fanning out beneath them.

It's a lovely image. But next to it is another image, of another bridge in the same spot, with the same biker, the same pedestrian—a twin-arch bridge now. And a third image shows the whole scene yet again, with a low and wide box-girder bridge.

These three views are of bridges that are practical, beautiful—and wholly imaginary. A company called Macromedia Technologies, Inc., created them in a computer, combining existing photographs with the designs of artist James Carpenter for the new Wabasha Street Bridge across the Mississippi in downtown St. Paul, Minnesota. "Visualizing the Unbuilt" is the company motto. "It's just like *Jurassic Park*," says Frank Blundetto of Macromedia, referring to the film's special effects.

Of the choices created for the city by artist James Carpenter, the V-mast design (opposite) was the most radical—and most expensive. Other options were a twin-arch design (above) and a box-girder span (p. 96).

The imagined bridges are not restorations of the past but evocations of the future. Today there are some 600,000 public bridges in the United States, of which almost 35 percent are in need of repair or replacement. After a long period of neglect, we are now entering a new era of bridge building and repairing. The story of the Wabasha Street Bridge reflects what is happening today in communities all over the country as they try to come to grips with the problems, the complexities and the compromises involved in building a new bridge—an enterprise that's not for sissies.

The anniversaries of the great bridges of postcard fame, from the Brooklyn Bridge to the George Washington and the Golden Gate, have generated enormous public interest. "More and more," says Eugene Figg, one of the nation's leading bridge designers, "people are looking for signature or postcard bridges, and paying more attention to esthetics." In *Engineers of Dreams*, a recent book on bridge builders, Henry Petroski asks us to imagine what our cities would be like without their landmark bridges.

When the people of St. Paul realized that the Wabasha Street Bridge would have to be replaced, they hoped the new one might serve as a signature of that city. The existing bridge was unsafe enough that trucks and buses were banned from it in 1987. Named for a series of Sioux chiefs called Wapashaw ("red leaf"), the 98-year-old structure was just the latest in a succession of bridges at the site, keeping pace with the evolution of designs, materials and economics.

The site's first bridge, completed in 1859, was one of the earliest to span the Mississippi River. A variation on the wooden Howe truss bridge popular before the Civil War, it was constructed by a private company that charged tolls. A decade later the city of St. Paul, having taken over the deteriorating wooden bridge, replaced

the main span with a wood-and-iron Howe truss, to be followed in 1876 by a wrought-iron Pratt truss, a sturdy bridge style favored by railroad builders at the time. It was replaced yet again in 1889 with the most recent structure, a steel cantilever truss.

The era in which the first Wabasha Street Bridge was built was one of rapid expansion in America. To construct bridges quickly and at low cost, builders reinvented the truss, a form explored during the Renaissance by architects like Palladio but largely forgotten since then. Before the rebirth of the truss, most bridges in this country were simple, flat spans supported solely by the piers they rested on; this required many piers for bridges of any length. But in a truss, diagonal members in the structure of the span itself allow it to support weight over long distances, and to rest on a minimal number of piers. The Howe and Pratt truss designs used at Wabasha Street were successors to the ubiquitous Town lattice truss, developed in 1820 by New England architect Ithiel Town, who patented its design and sold permission for its use by the foot.

Unlike Roman aqueducts and other European bridges, most American bridges of the early 19th century—built quickly, and of wood and iron instead of stone—were not designed to last forever. The most recent Wabasha bridge, though long-lived, was no exception. Its decline, like that of most of the defective bridges in the United States, was quiet and undramatic, the consequence of exposure to the elements and simple age. By 1987, the steel supporting the pedestrian walkways had begun to crack, and a fatigue analysis showed that the main body of the bridge wasn't far behind.

The first Wabasha Street Bridge, a wooden Howe truss, went up in 1859 when St. Paul was a fur-trading center.

The city's most important span

Per capita, say local historians, St. Paul is one of the "most bridged" cities in the country. And, historically, the central location of the Wabasha Street Bridge had made this span the city's most important. But over the years, the bridge's deterioration had been paralleled by a decline in the industries along the St. Paul waterfront. Now the city wanted to revive the old waterfront with parks, shops and other amenities in place of docks and warehouses. In short, the new Wabasha bridge would be more than just a bridge.

For St. Paul, which shares a stretch of the river with Minneapolis, it was a question of self-image. To many outsiders, the "Twin Cities" appellation conjures up identical cities, but St. Paul and Minneapolis are more like sibling rivals, each with its own character. Folks in St. Paul sometimes speak of the more cosmopolitan Minneapolis as trendy, even snobbish. Their own city, they will tell you, is a workaday, no-nonsense place. Famed for its grain elevators and barges, St. Paul marks the highest navigable point of the Mississippi, receiving

Tired of wood repairs, for its third bridge the city had a Pratt wrought-iron through truss built in 1876.

commerce from the heartland, and from the seas beyond New Orleans. At St. Paul, the great river bends like a grease trap beneath a kitchen sink, weaving through parts of the city itself. Here sits the Wabasha bridge.

In 1989, a man named Jim Scheibel was elected mayor; included in his platform was a promise to rebuild the bridge as an important civic landmark. When he took office, Scheibel created a task force for this project, stipulating that an artist be included in order to ensure that the bridge would be beautiful as well as functional.

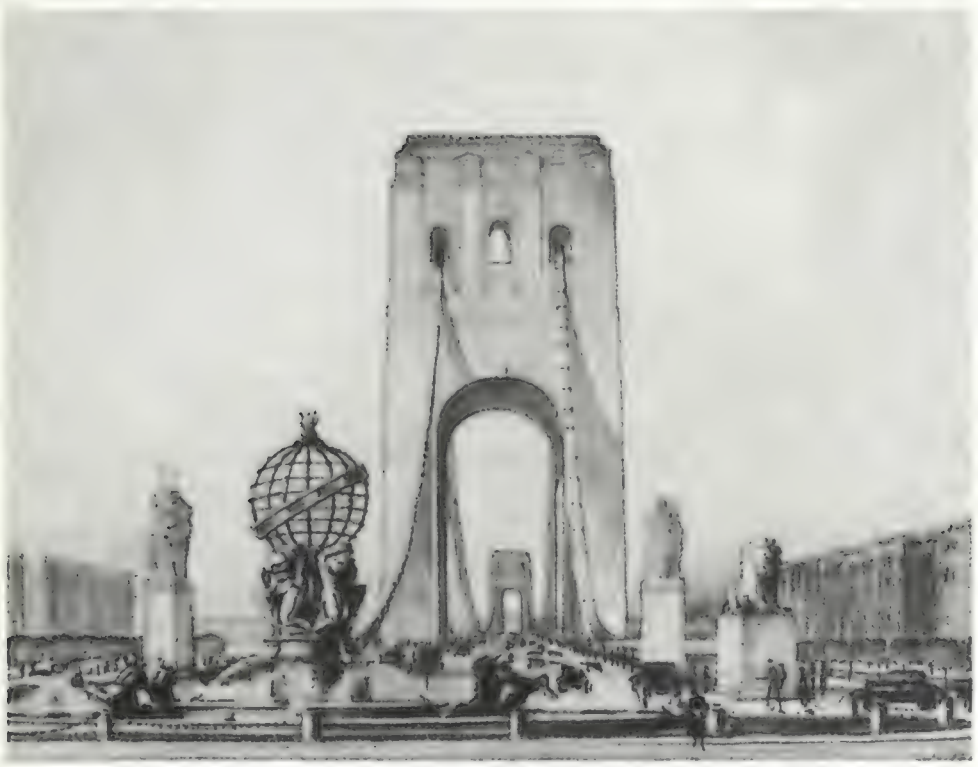
The task force, made up of local architects, engineers, city officials, civic group leaders and others, enlisted the local engineering and architectural firm of Toltz, King, Duvall, Anderson and Associates, Inc. (TKDA), which is headquartered in an office tower four blocks from the bridge. To choose the artist, in 1991 the task force held a competition, which drew some 60 proposals. Of these, five finalists were chosen—Alice Aycock, May Sun, Philip Rickey, Santiago Calatrava and James Carpenter. Calatrava's futuristic bridges in Spain—including one for the 1992 Olympics in Barcelona—and elsewhere in Europe had won him worldwide attention and an exhibition at the Museum of Modern Art in New York City. But he pulled out when he concluded that the preliminary $20 million budget was inadequate for the job. "Calatrava warned us," says arts activist Christine Podas-Larson. "We just didn't have the funds for the kind of landmark we hoped to build."

The competition winner, James Carpenter, is not a professional bridge engineer. He is a sculptor who has created dramatic shapes of glass and metal for airports, building lobbies and other public facilities. Carpenter uses stress analysis and complex steel brackets the way other artists use a tube of oil paint or a palette knife. For technical help on the bridge, he enlisted a friend, German engineer Jörg Schlaich.

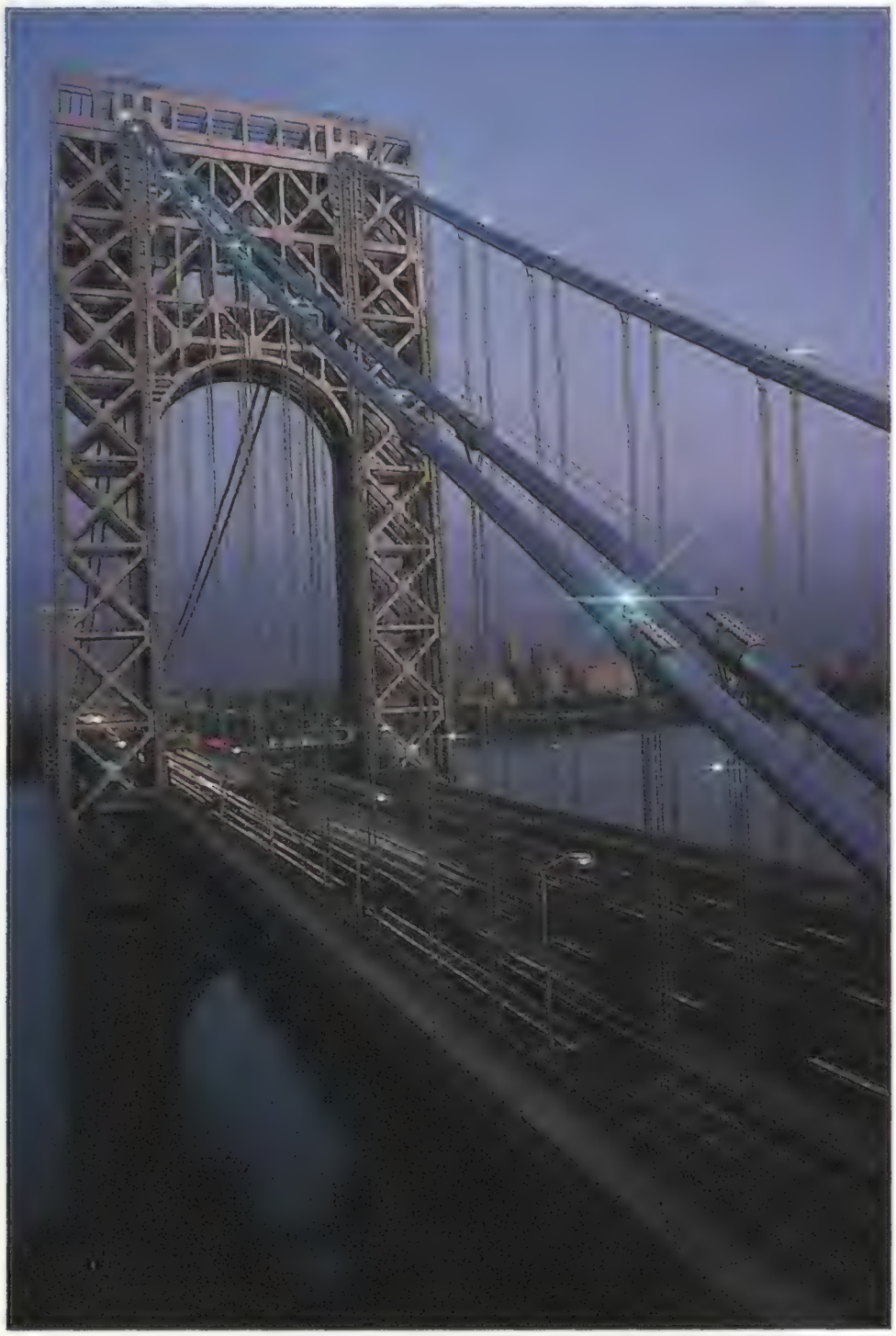
Breakfast with a view to contemplate designs

Carpenter, who lives in New York City, began making trips to St. Paul to plan the new bridge. Each morning, he had breakfast at a small café called the No Wake, located on a boat tied up near the foot of the old Wabasha bridge. From here, Carpenter could see the entire span, including the point on Raspberry Island where the bridge touched down on its way across the river.

Over breakfast, Carpenter would think about the new bridge, in the valley beneath the bluffs. It would have to curve at the island, drawing together the grids of the cities on either side. The design he came up with was a cable-stayed bridge—a type rare in the United States—with a unique twin-mast design. Tilting like wings in a V, the masts would draw the eye to the center island. He also imagined a lighted stair tower on the island that would serve at night as a beacon.



Towers of the George Washington Bridge, which spans the Hudson, were meant to be encased in masonry (above), but funds dried up. The public didn't mind.



The federal government would provide basic funding for whatever bridge the city chose, but the remainder would have to come from St. Paul. Enthralled by the V-mast, many members of the task force were hopeful that the city could come up with the necessary funds, either by lobbying the federal authorities for extra support or by raising money from private donors.

Carpenter would now learn the vagaries of local politics and federal funding rules. His heart was in the V-mast design, but the task force asked him to propose two other alternatives. And, because of federal funding rules at the time, each of the three choices then had to be presented in two forms—one using concrete and one using steel. The choices ranged widely in estimated cost—from a box-girder design at $27 million, to the V-mast, at $52 million. Once the alternative designs were finished, hearings were held to present the options to the public. There was no lack of opinions. The costs were overestimates; they were underestimates. The V-mast was just what St. Paul needed; it was the last thing the city needed. The debates boiled down to two questions: What kind of bridge could St. Paul afford? And what kind of image did the city want to project?

Bridges, after all, have long figured as powerful symbols. In Thornton Wilder's novel, the collapse of the bridge at San Luis Rey drew together the lives of diverse characters. The bridge on the River Kwai became a symbol of misplaced pride and endurance. The covered bridges of Madison County, Iowa, were the focus of Robert James Waller's sentimental best-selling novel.

Consider the bridge at Mostar, in Bosnia and Herzegovina, a rugged arched stone bridge worthy of a fairy tale. The footbridge had stood since 1566, scarred but never felled by the conflicts that raged through the Balkans. The intensity of the recent fighting, however, led to its destruction in 1993, and it has become a symbol of the terrible conflict in the region.

What makes a bridge beautiful is less clear. David Billington, professor of engineering at Princeton University, teaches his students that engineering can be art. "Beauty will not unconsciously arise out of a search for economy," he has said. "Rather, there are personal choices for engineers to make, and the engineers are to be judged on those choices."

It was a fond belief of such modernist architects as Le Corbusier that structures built in modern materials like concrete and steel could be beautiful, without being covered or decorated. This idealistic view prevailed in the 1930s, when the exposed steel of bridges such as the George Washington or the Golden Gate seemed to be great esthetic triumphs in themselves. In fact, the towers

Phil Patton, who often writes for SMITHSONIAN, *is a contributing editor of* Wired *and* Esquire *and author of* Made in America *(Penguin, 1993).*

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of the George Washington Bridge were to have been encased in masonry structures designed by architect Cass Gilbert, best known for designing the Woolworth Building in New York. But the stock market crash of 1929 had left the Port Authority strapped for funds, and the public seemed to like O. H. Ammann's bare towers, so bridge officials simply left the towers uncovered.

One thing is for sure: whatever its symbolic or esthetic value, a bridge has to do its job, first and foremost. Nowhere is this more apparent than at the International Bridge Conference and Exhibition held each year in Pittsburgh, which proudly calls itself the "city of bridges." Historically the center of the nation's iron and steel industry, Pittsburgh sits where two rivers flow together, just below its downtown. The rivers are spanned by dozens of bridges of all sorts and ages.

In a hotel lobby, bridge engineers and administrators are wooed by vendors of all manner of products and services, from commercial divers skilled in inspecting underwater piers to manufacturers of steel guardrails. The bridge engineers attend seminars that bring them up to date on new projects; in recent years, workshop topics have ranged from the replacement of the historic Navajo Bridge across the Colorado River to the proposed widening of the Huey P. Long Bridge in Louisiana to the reconstruction of the New Haeng Ju Bridge in Korea.

Here, there is little talk of symbolism or esthetics. Instead, the subject matter is underwater bridge inspections and "tests to failure," "crack propagation," the stresses of exodermic decks, and bad bridge planning "due to designers who did not possess a vivid sense of reality." The convention is a reminder that bridge builders live in the shadow of one fear: that their bridges will fall down. Past disasters ring in their ears. The most famous cautionary tale is that of Washington's "Galloping Gertie," the Tacoma Narrows Bridge, which was twisted into fatal heaves by a storm in 1940. The disaster was preserved in a strip of film that virtually every bridge engineer saw as a student—and continues to see in the occasional nightmare.

In many ways, our more recent national awareness of bridges can also be attributed to failures. We paid attention in 1967 when the Silver Bridge in Point Pleasant, West Virginia, collapsed; in 1983 the Mianus River bridge failure on I-95 in Connecticut seconded the message. And just two years ago, the wreckage of overpasses in the Los Angeles earthquake suggested the frailty of our whole infrastructure.

At the 1994 convention in Pittsburgh, Macromedia Technologies displayed the images of James Carpen-

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A beloved landmark in Bosnia and Herzegovina, the stone footbridge built at Mostar by the ruling Turks in 1566 is no more. It survived centuries of conflict but was finally destroyed during fierce fighting in 1993.

ter's Wabasha bridge designs. Computer visualization is an important new tool for engineers eager to sell their bridges to public officials and the public itself. The programs can provide animated flybys showing the landscape as one moves over, under or across a proposed bridge. In the exhibit hall in Pittsburgh, Carpenter's V-mast design drew tremendous interest. But back in St. Paul, the attention hadn't been entirely positive.

For his part, Carpenter never imagined the controversy that would result from his effort to make an esthetic statement with the new bridge in St. Paul. It was a replay of the battle between those who looked at a bridge as something to get the job done, and those who saw it as that and more. In fervid public meetings that dragged on through 1992 and '93, the proponents and opponents of Carpenter's V-shaped bridge debated with raised voices and desperate charges.

A year after the meetings ended, former task force chair Bob Frame still seemed shell-shocked at the depth and ferocity of the opposition that emerged in hearings on the new designs. "There was one man who kept following us," he recalled, "from a meeting on this side of town to one on the other to express opposition."

The old insider/outsider theme emerged, as some opponents boasted how long they had been in the city, implicitly challenging everyone else as a newcomer. The most common criticism was that the V-mast design "was not St. Paul"—the conservative, frugal St. Paul they identified with. "I didn't have the skills to deal with it once it got rolling," says Frame sadly. Larry Millett, who writes on architecture for the *St. Paul Pioneer Press*, attended most of the public hearings. He recorded the comments of one strident opponent who compared the proposed bridge's cable span to the notorious metal brassiere of Madonna's show costume.

The leader of the pro V-mast forces was Christine Podas-Larson, head of an organization called Public Art St. Paul. She saw the bridge not only as a new landmark for the city but as a symbol of a forward-looking and innovative metropolis. She dreamed of having postcards printed up bearing Macromedia's image of the V-mast bridge on the front and the legend "wish it were here" on the back. "No one was ambivalent," says Podas-Larson, with understatement.

In the end, it was not culture but cost that was the key to the rejection of the V-mast. Although proponents believed the cost was overstated due to the unfamiliarity of the design, it became the determining factor in cost-conscious St. Paul. Jack Maloney, a member of the bridge opponents called the River View Group, argued that the extra cost was money better spent elsewhere. Local Congressman Bruce Bento told supporters of the V-mast design that it would be futile to ask the federal authorities to fund it.

In 1993, Mayor Scheibel decided he could not advocate spending a possible $30 million extra for the more dramatic bridge. After the task force deadlocked on a choice, Scheibel, in one of his last acts in office, backed the box-girder bridge—the lowest-cost alternative. With this decision, the clouds of controversy began to lift.

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Like a sail over Tampa Bay, a pylon with cable stays rises above Eugene Figg's Sunshine Skyway Bridge.

Not everyone was happy about the decision, of course, but plans for the new bridge moved forward. At TKDA, staff members met to refine the winning design for presentation to the city task force. A new figure, Eugene Figg, had joined the TKDA team. His firm, Figg Engineering Group, is the only one in the country dedicated solely to major bridges; he is best known for his replacement of the Sunshine Skyway Bridge in Florida after the original was struck disastrously by a freighter in 1980. Figg's trademark is precast, segmental concrete, which was used in his Linn Cove Viaduct in North Carolina, built in 1984, and his 1,648-foot-long Natchez Trace Parkway Arches Bridge. Both designs—along with the Sunshine Skyway—won the federal government's Presidential Award for Design Excellence.

Local officials, says Figg, are interested in dramatic "gateway" or "postcard" bridges, and he firmly believes a bridge can be beautiful without incurring extra cost. Courtly, Charleston-born, Figg is a master at human relations. He is walking proof that building bridges these days has as much to do with linking constituencies as with linking riverbanks.

At a meeting late in the summer of 1994, there was high hope among the assembled engineers and officials that Figg could get the project moving forward. His record was reassuring. The room was decorated with "Completed Signature Bridges" by the Figg firm. On the wall were displays of materials to be considered for the new bridge: shapes, shadows, colors, textures, vistas.

"This is just Gene Figg talking now," Figg said again and again during the meeting, in his soft accents. But he came with a reputation that made "just Gene Figg" ironic to those who knew his career.

The written agenda of the meeting was accompanied by a corporate-style organization diagram. It depicted Figg and TKDA, the bridge task force, the Planning and Economic Development officials, the city bridge engineer, Parks and Recreation, and the artist—all with arrows feeding into a circle from which emerged an arrow marked "selection of esthetic features." The group needed to reshape the least-cost bridge as the final design. Practical issues had to be decided—the size of sidewalks, for instance. Part of the plan for the bridge was to use it as a focal point of riverfront redevelopment, which was already under way.

One advocate of the box-girder bridge was a former city official named Dick Broecker, who through two mayoral administrations had been involved with improving the waterfront. Eloquent, quick and funny—as if Abraham Lincoln and Dick Cavett had somehow been joined in a single body—Broecker invoked history to urge that the bridge become a link between downtown and flourishing ethnic communities on the other side of the river, invigorating commerce and social life. For their part, the engineers found it hard enough simply fitting the new bridge into the city grids and existing structures, including a jail, the riverfront park and Raspberry Island. And then, inevitably, the group turned to the question of making the simple bridge more esthetically pleasing—of decorating it, although no one used that term.

Darrel Berkowitz, the TKDA engineer in charge of the bridge project, recalled his early days in the profession, in the late 1960s. "In those days no one talked about esthetics. The Interstates were at their height and the idea was to build bridges as fast and as inexpensively as possible."

But, even after everything this project had gone through, esthetics were still a concern. Was there any way, the group was asking itself, that the simple, low-cost bridge could become a civic focus? Perhaps there could be sculptures or bas-reliefs? "We promised to incorporate historical elements of the old bridge," someone recalled.

Not long before, Figg had gone to Daytona Beach,

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Florida, to work on a bridge with local citizens. From a number of suggestions for a theme, the group had chosen a set of aquatic images: leaping dolphins and fish to be molded into the concrete, supplying ornament at virtually no increase in cost. Now he asked, could something similar be done in St. Paul?

After the meeting, the group walked the few blocks to the old bridge and the site of the new bridge. It was dusk and the river looked warm and alive, filled with a light that, seen from the bluffs, was almost romantic. Gazing out across the Mississippi, each member of the group saw his or her own bridge.

Meanwhile, his original vision shelved, Carpenter turned his artistic focus to a stair tower on Raspberry Island, one of the last elements that remained of his original V-mast proposal. He imagined it as a kind of lighthouse, at a crossroads of space and time, an illuminated beacon for the whole valley. But it was unclear that there would be room in the budget for even this abbreviated survivor of his original vision.

Although frustrated that the V-mast would not be built, Carpenter was not finished with bridges. After the design for the V-mast was published in major architectural magazines, Carpenter's firm, Jamie Carpenter Design Associates, received calls about other projects, including a large-scale pedestrian bridge in Bremerhaven, Germany, and the lighting design for a bridge along Boston's Central Artery.

In the spring of 1996, demolition of the old Wabasha Street Bridge and construction of the new one began simultaneously. City engineer Leon Pearson now hopes to have two lanes of traffic open by the fall of 1997 and the entire structure completed by the following year.

The ultimate design bears little resemblance to any of Carpenter's proposals—except that the bridge is curved and has stairways down to Raspberry Island. The bridge will be functional and reasonably attractive. It may not be the bridge of everyone's dreams. But, for better or worse, it will be a bridge that all of St. Paul can live with.

The new Wabasha Street Bridge, a simple box-girder design, should be completed in 1998. The twin stairways down to Raspberry Island are more traditional than the dramatic stair tower originally proposed by Carpenter.

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Photographs by Eric Sander

They look neat upon the seats of bicycles built to view

"It's the people, it's the weather," says cycling guru Gerry Pease as he tries to explain the explosion of bizarre bikes and peculiar trikes parading up and down the streets of—where else?—Southern California. From one-of-a-kind experimentals to super-speedy recumbents (so called because of the cyclist's position), from snazzy lowriders to kamikaze-like gravity bikes, cyclists have taken old ideas and transformed them into transportation with a twist.

Aficionados of these bicycle mutations have clubs, Internet websites, magazines and regular gatherings for information exchange and showing off. Art galleries are even organizing exhibitions to display some of the best designs and most innovative ideas. One gallery suggests guests arrive at the opening on their bicycle of choice.

Jeff Della Penna, director of the American Bicycle and Cycling Museum in Santa Fe, praises the innovators for their amazing creativity. "These subcultures are the reason that bicycling is so fun and exciting. But there is also a downside," he continues. "The groups don't coalesce to lobby for more recognition of bicyclist rights on the road or other safety issues. However, there is no question that the future of bicycling is limited only by the imagination of cyclists, and I can't wait to see what happens next."

Marlane Liddell

Arthur Dillon and son, Christopher, ride their giant tricycle (left) in Venice Beach. Designed and built by the elder Dillon, the trike is 22 feet long and 11 feet high. Tom and Sima Traylor pump their tandem recumbent bicycle (bottom). Each wheel has its own gearing, but the rear rider's is reversed so the bike is pedaled normally. Dwight Garland III rides downhill on a gravity bike with no pedals (below). Dan Hanebrink, who built Garland's bike, claims the gravity speed record of 75 miles per hour.

Chava Hernandez built his lowrider bicycle from a Schwinn Sting-Ray, adding touches such as a gold-plated chain and pedals (above). Greg de Alba customized his purple lowrider (right), one of three he owns. "Lowrider bicycles go back a few years as a way for the kids of parents with lowrider automobiles to get into the act with their own vehicle," says Jeff Della Penna. Lowriders combine custom-built suspension systems with the 20-inch banana seat bike popular in the 1970s. They feature elaborate paint jobs, and bells, whistles and sirens providing sounds ranging from simple beeps to synthesized versions of "La Cucaracha."

Gerry Pease pedals his futuristic Lightning racer (above, right) with his friends along Manhattan Beach path. This type of streamlined recumbent bike, which is covered with an aerodynamic "fairing," holds the human-powered-vehicle record for a race between Los Angeles and New York. Arthur Dillon (left) rides his one-of-a-kind bike at about 25 mph, but he needs space because he has no brakes. "They make the bike flip over," he says.

Steven Thomas has been collecting bicycles for 32 years and lives with more than 60 vintage bikes, along with his wife and son, in his Pasadena apartment. Thomas (opposite) describes his collection as "functional art"; he restores the bicycles mechanically so they are fully operational. Thomas is not a purist and says, "It's rare to find a bicycle that is 100 percent historically correct." His collection includes (clockwise from top): a Huffy Radiobike from about 1955 or '56 with a tube-powered AM radio in the tank assembly; a Monark Silver King built in the late 1940s of aluminum, chrome and stainless steel; a red Sherrel from about 1979 with a one-piece fiberglass body; a Bowden Spacelander built in 1960 with a two-piece fiberglass body; a 1939 Shelby Speedline Airflo lady's with a pedestal radio powered by a tank battery; an Elgin Twinbar 1940 with a pedestal speedometer mounted on the handlebar; a J.C. Higgins Deluxe (center) built about 1950-52 by Sears, Roebuck.

Thomas often takes Shaun, his 4-year-old son, for rides on his Colson Imperial Flyer tandem bicycle (left), which is steered from the back as well as from the front. The front has a "lady's seat" along with smaller handlebars and pedals. Opposite: The 1897 Old Hickory owned by Rob Miller of Buena Park is all wood, including the seat. The leather tool pouch probably comes from an antique Eldredge bicycle.

By Minna Morse

Across the country, it's all happening at the coffeehouse

In small towns and cities, too, we're seeking out neighborhood havens where one can savor an espresso—and a sense of community

Giovanni Giotta serves up cappuccino at his Caffè Trieste, a San Francisco landmark for 40 years.

It is 10 o'clock on a Saturday morning in San Francisco's North Beach. On Vallejo Street, a cluster of people sit at folding tables outside the storefront at number 601. Orange-and-red letters on the window spell out the name of the establishment: "Caffè Trieste, fondato nel 1956."

Inside, the smell of fresh-roasted coffee rises from behind the counter. Customers are lined up for their espressos and cappuccinos; others are already settled in old wooden chairs at rows of mosaic-tiled tables. It is comfortable, cluttered, its amber walls covered with old photographs of celebrities and owner Giovanni Giotta and his family.

When Giotta—or Papa Gianni, as he is known—opened Caffè Trieste in 1956, it was the first Italian caffè in North Beach, "the first on the West Coast," he claims. At a time when America was just being introduced to espresso (the first time around), Caffè Trieste became a popular hangout for Beat Generation writers. More recently—as coffee and espresso bars have taken over the urban landscape—it has become a haven for loyalists craving a neighborhood institution.

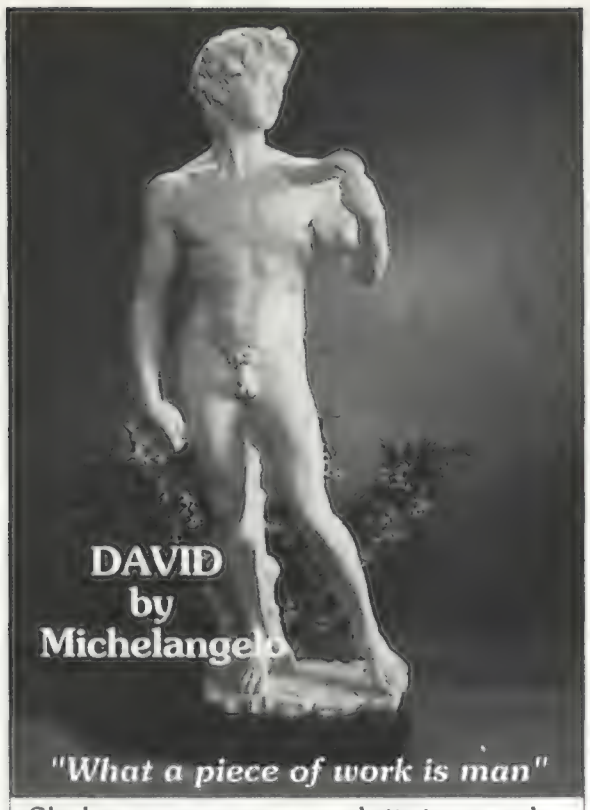
Papa Gianni, a small man in his early 70s, drops by nearly every day. His sister, Iolanda Bodi, the resident barista, seems to know everyone who comes in by name. "You must come later," Giotta tells me. "We sing—me, my daughter and son—the whole family, we play music." It's become a Saturday afternoon tradition: the Giotta family performing for their faithful clientele.

A number of customers admit that they come to Caffè Trieste for the atmosphere more than for the coffee, which is, well, unpredictable. "We roast our own beans now," Giotta boasts, in defense of his brew. "Only the best." So how do his espresso drinks compare with drinks at, say, Starbucks? "Ah," sighs Papa Gianni, "Starbucks—they are everywhere."

It is nearly impossible these days to talk about coffee—or about the establishments devoted to serving it—without mentioning Starbucks. When college buddies Jerry Baldwin, Gordon Bowker and Zev Siegl opened their first coffee store in Seattle in 1971, they had no idea that the Starbucks name would someday fuel a nationwide frenzy for fresh-roasted beans and espresso drinks. But after a visit to Italy in the early 1980s, Starbucks employee Howard Schultz came back with a vision of a national chain of Italian-style espresso bars. In 1987 he bought the company from his former employers and spread the Starbucks name throughout the land. Other entrepreneurs followed in Schultz's wake and—faster than you could say "espresso macchiato"—the country began learning the language of lattes.

According to the Specialty Coffee Association of America, retail sales of specialty coffee beans and beverages—already $1.5 billion by 1989—will have doubled by the end of the decade. Halfway through the '90s, there are already four coffee bars in a two-block stretch

Photographs by Regis Lefebure



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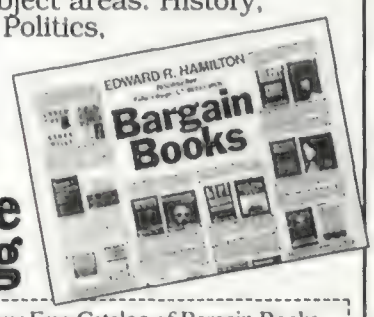

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of shops near my home in Washington, D.C., and all of them certainly seem to be thriving. One of them, not surprisingly, is a Starbucks.

But side by side with the spread of Starbucks-like enterprises has been a boom in the slower-paced, cozy cafés of years gone by. Places where you can grab a cup of coffee and a paper, and sit for hours. Places where—like the line from the *Cheers* theme song—"everybody knows your name." And places where, blissfully, no one knows you at all.

Places like Caffè Trieste.

"What you're talking about is a coffeehouse," says Starbucks cofounder Jerry Baldwin, now chairman of Peet's Coffee in San Francisco ("the grandfather of specialty coffees from around the world"). "Starbucks and Peet's are coffee bars. They provide coffee—and often a pleasant place to drink it. But coffeehouses are more than that," he says, with a hint of longing in his voice. "A coffeehouse is where you play chess in the evening, read magazines, talk about serious things."

Coffeehouses like Village's Gaslight were the Beat Generation's mecca.

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Patron at San Francisco's Coffee Zone Café settles in for a cozy cyberchat.

My own favorite coffee haunt fits Baldwin's bill to a tee. Though I can walk to a number of coffee bars in my neighborhood in Northwest Washington, I prefer to drive a little farther to Politics and Prose, with its checkered floor and mismatched kitchenette sets, friendly staff and familiar clientele. It's almost four years since the Politics and Prose bookstore added a coffeehouse to the lower level of its Connecticut Avenue store, and the place has become a neighborhood fixture.

"You should see this place on weekday mornings," says Carla Cohen, co-owner, with Barbara Meade, of the bookstore and coffeehouse. "Mothers come in here with their babies, after they've dropped the older kids at school. They get to meet with their friends—and no one has to clean up or make food. Throughout the day, we get retirees, people who work at home. Then, in the afternoon, the high school kids come in. Their parents are so happy that there's a safe place for them to go—and the kids think they're being so chic, coming to a coffeehouse.

"In the evening, a whole different crowd appears: young professionals, couples on dates," she continues. "Peo-

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ple use the coffeehouse for book discussions, group meetings, anything you can imagine. It's become a real meeting place."

Across the country, coffeehouses like this one are becoming essential elements of many people's lives. They come not just for a jolt of java, but to socialize, to fill their leisure time in a comfortable—and comforting—setting. It's happening everywhere, even on TV. On the hit show *Friends*, the twentysomething characters are constantly convening in Central Perk, the show's fictional—but awfully inviting—coffeehouse.

Jacques-Jean (J.J.) Tiziou, a 17-year-old regular, and now a part-time employee, at Politics and Prose, explains the appeal: "If I sit down in here and have a cup of coffee, I can be sure that within 15 minutes someone I know will come in." And even if no one familiar arrives, coffeehouses offer their own familiarity. As one devotee told me, "Even if I'm not engaging in conversation, being in a coffeehouse makes me feel as if I'm engaging in life."

Coffee and coffeehouses have a long history of bringing people together. First discovered in East Africa about 1,500 years ago, coffee spread to the Middle East, where it became a staple in Arabs' daily lives, a social substitute for the alcohol forbidden in Islamic law. The world's first coffeehouse, at least according to one legend, opened in Damascus in 1530, and from then on the establishments spread through the Ottoman Empire, popping up like so many Starbucks, wherever people needed a place to sit, play games, and trade news and gossip.

In the early 17th century, coffee began appearing throughout Europe, first in Italy—carried there by Venetian traders—then France and England, Germany, a little later Austria, and so on, with each country, in turn, developing a coffeehouse culture to suit its citizenry.

Assistant Editor Minna Morse enjoys the comfort of coffeehouses for a good read and a great java.

Next door to the Trieste, Fabio Giotta oversees family's bean-roasting trays.

The best word to describe the century-old coffeehouses of Austria and Germany is, simply, "civilized." With their polished wood, courtly waiters (and patrons), the day's newspapers neatly hung on wooden rods—and let us not forget the strudel—the coffeehouses assumed a central role in everyday life. For Berliners, the *Kaffeehaus* evolved as a stately haven of the bourgeoisie. The Viennese convened in such refuges to engage intensely in the life of the mind.

In Paris, too, the cafés became famous as the domain of artists and intellectuals. According to French historian Jules Michelet, in the late 17th and early 18th centuries, Paris "became one vast café"; conversation, he said, was "at its zenith." One of the most prominent cafés was the Café de la Régence, which attracted luminaries such as Rousseau, Hugo and Voltaire (who claimed to have regularly drunk 50 cups of coffee a day). Diderot worked there on his massive *Encyclopédie*, with a daily coffee allowance—given him by his wife—of nine sous. In the 19th century, the Café de la Nouvelle Athènes and the

Café de l'Ermitage became popular watering holes for the French Impressionists. And it was at the Café des Deux Magots, in the first decade of this century, that Pablo Picasso and Georges Braque brought the Cubist movement to life.

"In the first half of the 20th century," says historian Theodore Roszak, "the cafés of Paris—particularly those of the Left Bank—had a reputation for being exotic, bohemian, fringy" places where heated intellectual discussions took place. As French writer Boris Vian once pointed out, "if there had not been any cafés, there would have been no Jean-Paul Sartre."

According to Roszak, author of *The Making of a Counter Culture,* the coffeehouses that emerged in America in the 1950s and '60s—smoke-filled rooms where waitresses wore black tights, and open mikes beckoned poets and bongo players—were firmly rooted in "the tradition of the bohemian cafés of Paris." They also played an essential part in creating the social and political movements of the '60s. "That's where the ideas that made the counterculture were first passed around," Roszak says. "I can't imagine that period without the coffeehouses. They were about poetry and art and jazz—and espresso—but they were also, most definitely, about politics and dissent."

Coffeehouses and political dissent have, in fact, gone hand in hand through history. In Colonial America, the Sons of Liberty met regularly in the coffeehouses of New York and Boston, including Boston's Green Dragon, which Daniel Webster later dubbed the "headquarters of the American Revolution." Across the Atlantic, on July 12, 1789, young journalist Camille Desmoulins urged a crowd to take up arms outside Paris' Café Foy. Two days later, a mob stormed the Bastille, signaling to the world the start of the French Revolution.

From the time that coffeehouses first appeared, rulers have attempted to ban them, for fear that they would lead to just that level of political unrest. Khair Beg, governor of Mecca, was probably the first official to go down that road when, in 1511, he tried to ban coffee, thereby thwarting the city's coffeehouses. He didn't prevail, however, perhaps because the sultan of Egypt was a fan of the black brew. Charles II of England took the same tack as Beg in 1675, on the grounds (no pun intended) that the "multitude of coffee houses . . . have produced very evil and dangerous effects," primary among them "the Defamation of his Majestie's Government" and "the Disturbance of the Peace and Quiet of the Realm." Faced with the resulting wrath of his subjects—and the daunting prospect of lost revenues from coffee taxation—he quickly revoked the ban. But given the rich coffeehouse culture that was developing in England at the time, his fears were not entirely misguided.

"Every profession, trade, class, every party has its favourite coffeehouse," wrote one observer of the coffeehouse culture that had taken over London by the early 1700s. "The gamblers would

At Politics and Prose coffeehouse, in Washington, D.C., moms bring infants.

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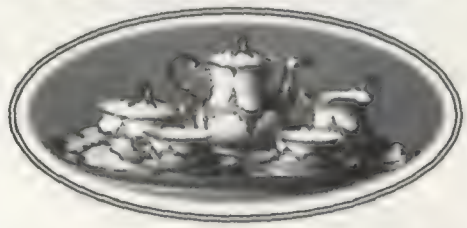

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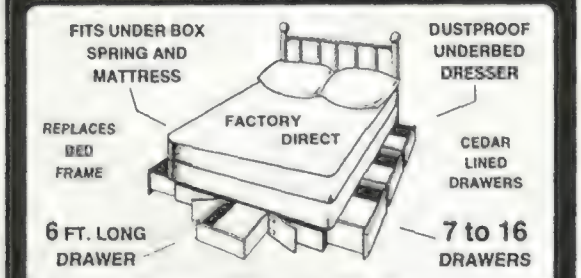

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play dice in White's . . . and the leading wits gathered at Will's, Button's or Tom's . . . the military came together at the Old Man's while the rich burghers and merchants gossiped over the rise and fall of shares at Lloyd's."

Coffeehouses became the crossroads of London's intellectual life. Charging only a penny for admission, they were known as Penny Universities and, indeed, seemed to foster inquiry in every field of knowledge. A notable case in point: in 1700, at the Grecian Coffee-House—a popular spot for members of the Royal Society (founded 45 years earlier in yet another coffeehouse)—astronomer Edmond Halley, physicist Isaac Newton and British Museum founder Hans Sloane once held a crowd's rapt attention as they dissected a dolphin that had been caught in the Thames.

Centuries before talk radio or *The McLaughlin Group*, coffeehouses offered a venue for hashing out events of the day. Many had their own speakers, who would lead discussions of current politics, usually (and this was the point) drawing a crowd to the establishment. In 1709, Sir Richard Steele launched a thrice-weekly paper, the *Tatler*, for coffeehouse patrons, followed by the daily *Spectator* in 1711. The short-lived but influential papers—containing Joseph Addison's essays and credited with the birth of the modern weekly review—simply put coffeehouse-style punditry into print.

The close relationship between reading, rhetoric and coffee is being carried on in many coffeehouses today. "There's a chain of coffeehouses in New York called News Bar," says Sharon Zukin, a professor of sociology at Brooklyn College. "They have a few TVs going at once, and lots of magazines and newspapers for patrons to read. A friend from Germany was visiting me and was amazed to see such a thing. 'We don't have anything like this,' she told me. That surprised me. I still think of Germany as being full of those old-world coffeehouses, supplied with all variety of newspapers."

In the 17th and 18th centuries, those "old world coffeehouses" also became gathering spots for booksellers, who would set up shop nearby. Today, that tradition lives on in combination bookstore-coffeehouses like Politics and Prose, the Borders chain and countless others, where patrons can read newly purchased books. And Starbucks now has paired up with the Barnes & Noble chain to introduce coffee bars into those bookstores.

For those who prefer to read from computer screens, there's a whole new

Opened in 1844, Vienna's gracious Café Griensteidl had, by the turn of the century, become a gathering place for the city's avant-garde.

Since 1875, the Café des Deux Magots has been a favorite haunt of Parisian artists and intellectuals, including luminaries such as Picasso and Braque.

brand of coffeehouse made just for them. Inspired equally by today's technology and by the coffeehouses of yesteryear, San Francisco native Wayne Gregori recently decided to revive café conversation—via the Internet. In 34 cafés throughout the city, customers can sit at terminals (imbedded in tables; a surface where you can set down your coffee is essential) and talk with folks all over town via the "Virtual Café." A Cyber-Café page on the World Wide Web now lists more than 100 such cafés in the United States alone.

Today, as in 18th-century England, coffeehouses have emerged to suit every taste: smoke-filled and smoke-free, quiet and boisterous, catering to yuppie and yippie, young and old. And there are many that manage to cross all boundaries, serving as focal points in the life of their neighborhoods and their communities.

Near the campus of Howard University, a historically black college in Washington, D.C., 23-year-old Michael Kheop and his friends began volunteering their time last year to establish Kaffa House, named for the Ethiopian region in Africa where coffee (and its name) originated. "Looking around the campus and the neighborhood, we realized we needed a place that was informal, where people could meet and talk," recalls Kheop, who was a senior at Howard when he founded the non-profit Kaffa House.

The Kaffa House has undergone a transformation—it's now a coffeehouse-cum-nightclub enterprise. Here, Howard students mingle with each other and their elders, stopping by for a coffee starting at 8 A.M. In the evenings, jazz and rap musicians perform on the same stage, and in the tradition of the '60s coffeehouse, poets read their work.

Daniel Kemmis, the mayor of Missoula, Montana—and a habitué of its coffeehouses—believes that establishments like the Kaffa House and Politics and Prose have "become an integral part of civic life." In this bucolic university town surrounded by the Rocky Mountains, a disproportionate number of citizens identify themselves as writers—not least of all the mayor. Kemmis, whose two books on community life were written mostly in Butterfly Herbs, Break Espresso and other Missoula coffeehouses, believes coffeehouses offer an antidote to the increasing atomization of modern life.

In his most recent book, *The Good City and the Good Life*, Kemmis often cites urbanologist Jane Jacobs, whose

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Inside the country's trendiest (fictional) coffeehouse, Central Perk, sitcom characters from the hit series *Friends* hang out over their lattes.

1961 book *The Death and Life of Great American Cities* extolled the virtues of sidewalks and other public spaces. These days, Kemmis points out, "we've neglected the importance of sidewalks. And the front porch has almost disappeared." Everywhere, he says, there are little indications of the increasing privatization of our lives—including his own pet peeves: Walkmans and tinted car windows ("We can't even *see* each other any more").

"People today drive to their homes," says Kemmis, "go inside, and spend time in front of the TV," instead of getting to know their neighbors. The revival of coffeehouses, he feels, is rooted in "our deep, even biological, need for social activity."

According to Sharon Zukin, author of *The Cultures of Cities*, Kemmis is right on target. "Coffeehouses have become important because they provide a public place where you can see other people—familiar and unfamiliar faces—whom you feel you can trust.

"In the past, and in small towns, the safe public places were Mom and Pop establishments, soda shops or diners, where you could go in, buy very little, and stay for hours." Those places, unfortunately, have gone the way of history, and coffeehouses, Zukin argues, have stepped in to fill the void. They allow people—all too isolated by modern life—to "reconnect with a common culture."

In 1989, sociologist Ray Oldenburg bemoaned the loss of these kinds of establishments—what he called "third places" between home and work—in his well-received book *The Great Good Place.* Today, he says, there's some indication that these community-building places are on the rise. The need for them, certainly, is greater than ever. As a result of corporate downsizing, Oldenburg says, "more and more people are working in isolation, out of their homes—if they're working at all. Without the community that a company or workplace provides, we begin to cast about." The so-called third place does fill that gap.

"If I didn't hang out in coffeehouses," says Timothy Mottet, "I probably would never see anyone." Mottet, a 34-year-old graduate student at West Virginia University, now frequents the Blue Moose Café in Morgantown, having moved there from Massachusetts.

"Back in Boston," he says, "I had an apartment on the top floor of a brownstone, and in the basement was a cof-

feehouse called Java. It had a fireplace. It smelled good. It was like my own living room, only better."

Having spent so much time in coffeehouses, Mottet has thought a lot about them. "They're the perfect semi-public arena," he says. "Places to see and be seen. They're a place to do work when you don't want to be entirely alone, a place to meet friends." For teenagers, coffeehouses are becoming a cozier, cooler place to hang out than suburban malls. And for young adults, says Mottet, they've become a sober singles bar for the '90s. "There's a lot of, um, activity going on," he says. "People exchanging glances—and phone numbers."

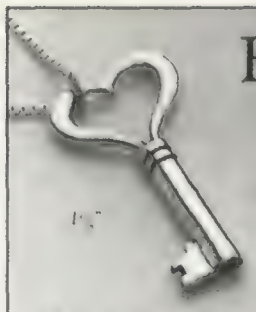
I've never seen that kind of activity at Politics and Prose, though I must admit, I have gone on a number of first dates there. Recently, a colleague told me that in her daughter's 7th-grade class, there was a flurry of gossip about a boy and a girl in the class about to go out on a "date." Not surprisingly, the date took place at Politics and Prose. Rest assured, though; the children did not have coffee.

Actually, many of us might be better off steering clear of coffee. In the fall of 1994, the Journal of the American Medical Association published a study on Caffeine Dependence Syndrome, inspiring syndicated columnist Ellen Goodman to mourn the passing of what she called the "last drug of the '90s," and clearly her drug of choice.

I must confess to suffering from "coffee nerves" occasionally, and java drunk on an empty stomach wreaks havoc on my digestion. But, as Napoleon once said of his coffee, "I would rather suffer than be senseless." Even if I end up giving in and switching to decaf, though, I will remain addicted to coffeehouses.

Essayist and drama critic Alfred Polgar once said that coffeehouses are for "people who want to be alone but need company for it." In San Francisco, at Caffè Trieste, Polgar's words are borne out. Scattered around the room are men and women reading, working on laptops, even painting—all things they could do at home, alone. But according to one loyal customer, the coffeehouse offers her a refuge from unpaid bills and from unmade beds. There she can get her writing done, see friends, people watch, read. And, of course, drink coffee. "I just pay a buck eighty-five," she says happily, "and stay all afternoon."

On a Saturday night, coffee drinkers gravitate toward the cheery clatter inside Caffè Greco, another inviting North Beach retreat in San Francisco.



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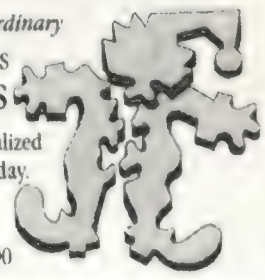

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Book Reviews

Talking to the Ground
Douglas Preston
Simon & Schuster, $24

Cathedrals of the Spirit
T. C. McLuhan
Harper Perennial, $20

There are many ways to look at a landscape. Where a rancher sees rangeland for livestock, the environmentalist may see ravaged nature in need of preservation. A landscape tells different stories to different people, and what we see may say as much about us as about the earth. Much of what we see and read about our landscape, these days, reflects a growing uneasiness about how we live and how we use the earth. The media take us from one natural disaster to the next; scientists debate the meaning of the ozone hole and global warming; endangered species such as the spotted owl cause schisms that rival those of the medieval church.

Two recent books, however, offer a very different perspective: in exploring the sacred nature of landscape, they offer a chance to refresh our own spirit. In *Talking to the Ground*, Douglas Preston leads us on horseback across the sacred land of the Navajos, in some of the remotest parts of New Mexico and Arizona. Preston is accompanied by his fiancée and her 9-year-old daughter; this book is as much about the creation of their new family as about the land and legends of the Navajo creation story.

While Preston roams mountains and deserts, T. C. McLuhan, in her *Cathedrals of the Spirit*, takes refuge in the vast resources of the New York Public Library, from which she has extracted a remarkable collection of words about sacred places, ancient and modern,

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from many cultures and many parts of the world. By different routes, both Preston and McLuhan take us to places where the landscape is a state of mind.

Preston has ridden across remote parts of the Southwest before, and has written about his trips in SMITHSONIAN and in previous books. For this journey, he decided to retrace the steps of a Navajo god, Monster Slayer, who cleared the earth of alien gods and gave the Navajos a homeland where they could live in harmony and beauty. The path of Monster Slayer is marked by sacred mountain peaks, mesas, springs, canyons and caves that are the petrified remains of his battlegrounds and defeated foes. Thus to the Navajos the land is the story of their life.

In Navajo legend, it was First Man and First Woman who embellished the land Monster Slayer had given them, by creating the sun and the moon, and raising the sky to rest on the peaks of their four sacred mountains. Then they laid out bits of mica on a blanket, and First Man began carefully placing them in the night sky to create the stars. But Coyote became impatient, flung the blanket skyward and blew: the stars flew upward and stuck all over the sky in a haphazard fashion. Some of the stars fell back to earth and became a cluster of buttes, which are today called the Sonsela (Stars Strung Out) Buttes lying across the border of Arizona and New Mexico in the Chuska Mountains.

Along with its legends, the history of this land is written in ruins, the pueblos of Chaco Canyon, Canyon de Chelly, and other settlements of the Navajos' predecessors here, the Anasazi.

At Chaco Canyon, around A.D. 950, the Anasazi built the magnificent Pueblo Bonito, four stories high with 650 rooms. According to one archaeologist, it was not equaled on this continent until 1882, when the Spanish Flats apartment building was erected at the corner of 59th Street and Seventh Avenue in New York City. But in building their society, the Anasazi clear-cut forests, over-irrigated and over-farmed their land, depleted the wildlife and in general indulged in the illusion that they had gained control over nature.

According to the Navajos, the Anasazi civilization disappeared because the people turned to witchcraft, thereby growing out of harmony with nature and offending the gods, which is also how the Navajos view contemporary white civilization. As Preston explains, when the traditional Navajos look on our great works they see ski resorts, logging roads and toxic waste dumps being placed on or about the four sacred mountains. They see the white man doing what the Anasazi did.

Preston's trail companions, his fiancée, Christine, and her daughter, Selene, give this book a sense of intimacy that makes the landscape seem more real. As the trio heads back out of Navajo country, riding toward home, there is this exchange:

"'I can hardly remember what it's like to live a normal life anymore,' Selene says.

"'It's like we're starting life over again,' Christine said. 'On a new planet.'

"'Let's call it *Selene's* planet,' Selene says. 'Where everything is magical, and ghosts and witches exist but aren't mean, and there are dark forests and beautiful streams and the animals talk just like people, and where there are no televisions or malls.'" The sacred landscape has left its mark on her, and on the reader as well.

In T. C. McLuhan's *Cathedrals of the Spirit* the text is itself a kind of landscape that you get to know after many visits; there are passages you may return to again and again, and others that may seem cloudy on one reading, but full of illumination on the next. McLuhan sees sacred landscapes as places of inspiration where human consciousness is temporarily set free. Her accounts range from the spiritual and mystic to the down-to-earth and scientific; in McLuhan's landscape you may come across a Persian mystic, a Hindu ascetic or a Buddhist philosopher, but you are as likely to encounter Charles Darwin, or the British botanist David Bellamy, who says of the yew tree, "A yew is just as important as Durham Cathedral, and a hell of a sight older."

There is so much variety to this collection that a review can hardly encapsulate it. But perhaps the spirit of the book is expressed by one of my favorite entries, environmentalist Edward Abbey's confession: "I sometimes choose to think that man is a dream, thought an illusion, and only rock is real. Rock and sun . . . belief? What do I believe in? I believe in sun. In rock. In the dogma of the sun and the doctrine of the rock."

Reviewer *Paul Trachtman* writes from rural New Mexico.

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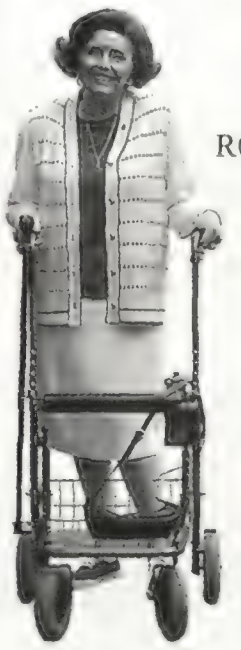
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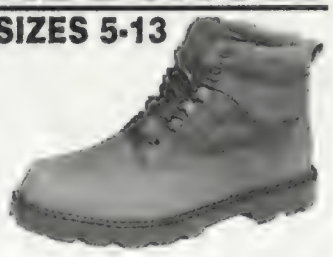
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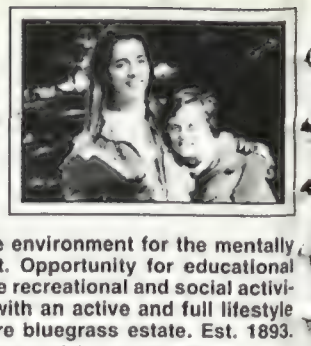
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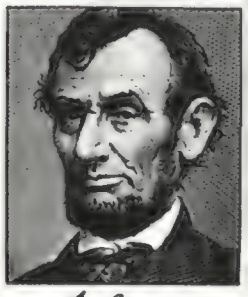
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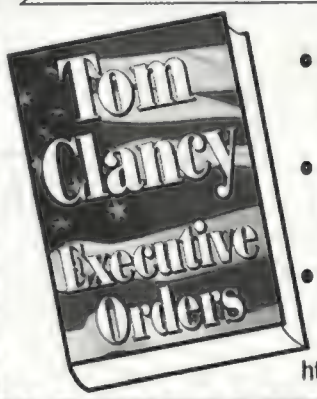
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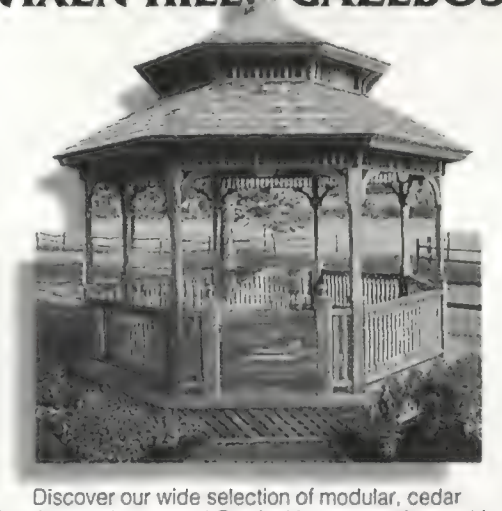

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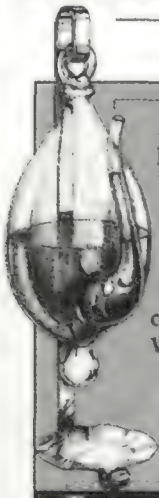

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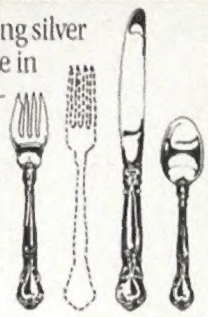

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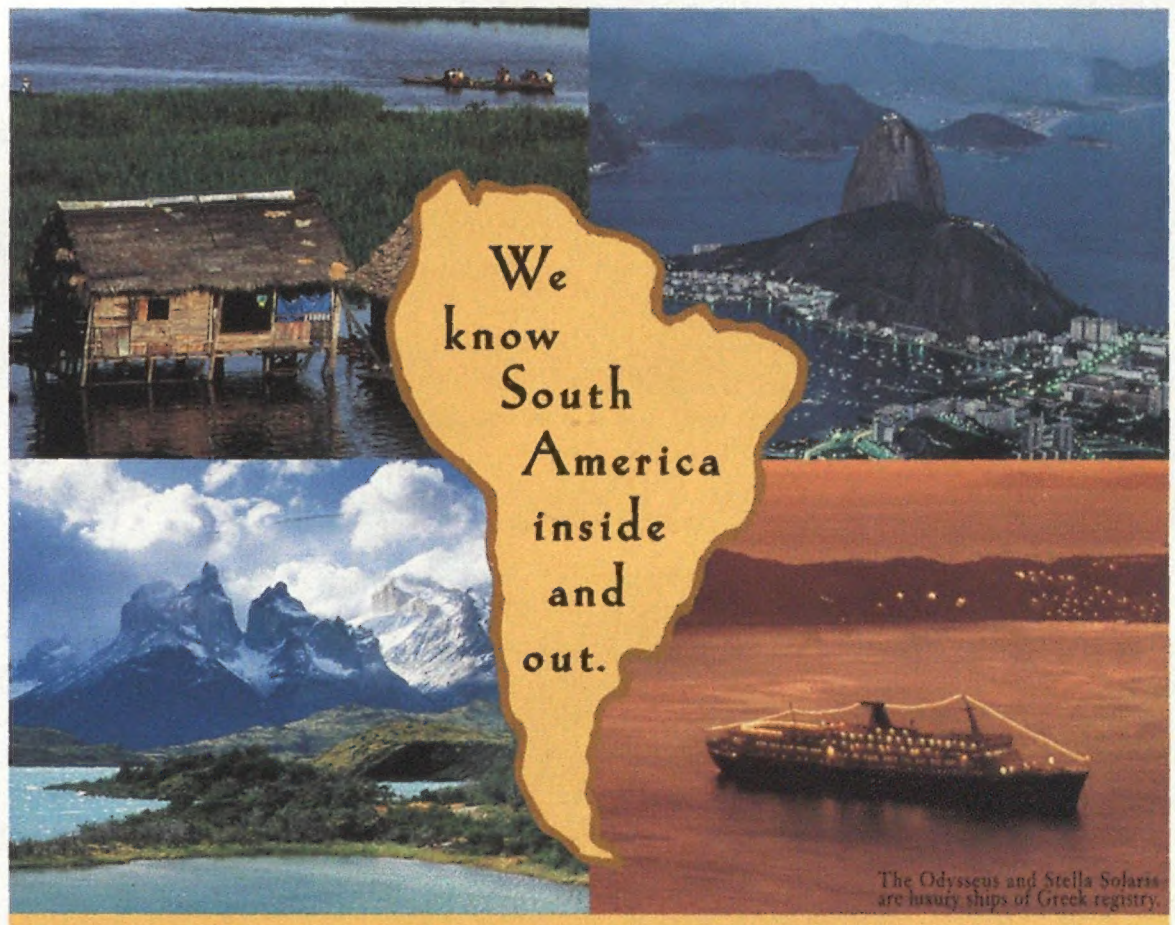

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By Gerald Dumas

While you're taking my mailbox, let me give you a piece of my mind

I don't know what's up with me lately. I seem to be going out of my way to annoy people. I like to think of myself as a genial fellow who does not set out to harass and provoke without good cause, but either we live in increasingly testy times or my personality is deteriorating.

It began with the mailbox. I live in a part of the country where all of the mailboxes are on posts near the heads of driveways, about a hundred feet from the houses. Over the years, my friends and neighbors have used mailboxes as convenient drop-off spots. Someone driving to work in the morning will pause and insert a birthday card, a letter, a paperback, the gloves my wife left after a recent Saturday-night dinner party.

Not long ago I left the outgoing mail in my box for the new mailman to pick up, then walked to my neighbor's mailbox and left a letter for him. The next day my letter was back in my box with a note from the post office: "Insufficient postage." I called the post office and got hold of a functionary there.

"Your note was in error," I told him. "It wasn't insufficient postage, it was no postage."

"So you forgot to put a stamp on," he said. "Put a stamp on and we'll deliver it for you."

"I did not forget to put a stamp on," I said. "I had no intention of putting a stamp on. There was no need."

"You want your mail delivered, you got to use a stamp."

"No, look," I said. "This is my next-door neighbor. I can hit his mailbox with a tennis ball from where I sit. I saw no need to trouble you guys; I didn't want you to get involved."

"You can't deliver mail. That's our job, delivering the mail."

"Wait a minute," I said. "My neighbor asked me to write that letter and put it in his box."

"He's not allowed to say that to you."

"What?"

"It's not his mailbox. It's our mailbox. We're the only ones who can put anything in it."

As luck would have it, my mailbox was totally destroyed three days later, as were several others in the area. This happens once or twice a year to various households and usually the culprits are destruction-deprived teens.

I called my friend at the post office.

"Listen," I said, "a mailbox at 31 Crown Lane was smashed to bits last night and needs to be replaced."

"Sorry to hear it," he replied. "Better get another one up fast. We can't deliver mail if there's no box."

"No, it's not my box, it's your box. Your box was destroyed, so you have to replace it."

Silence, then: "Is this that same guy?"

"Yes it is," I said. "Are you going to give me a new box?"

"Are you kidding me?"

"So three days ago it was your box. Now that it's been smashed, it's my box. C'mon, it's got to be one or the other. You want me to run out to a store, buy a box, get it back on the post somehow, paint it nice and pretty, put a number on it, and when it's all ready to use, then it becomes your box."

"You got it," he said.

Later, after I talked to a supervisor at the post office, I found my wife and told her, "Know what? That guy was right and I was wrong. The inside of the mailbox does belong to them." My wife, who has other concerns, asked me to help her find a garden trowel.

Later I went down to the hardware store on Main Street to buy a mailbox and got into a bit of a dustup with a cop about some new "smart" parking meters our town is trying out. These meters are computerized and have heat and motion detectors that enable them to sense when a car has vacated a space. The meter then resets itself back to zero. Nobody gets free time from the new meters.

"You mean," I said to the cop, "that I'm required to put in a quarter for a half-hour, but if I only need two minutes to buy a magazine, I can't donate the other 28 minutes to another driver?"

"You got it," he said.

"But I've bought that time, it's *my* time. The town can't sell the same time twice. I can do what I want with it."

"We make the rules, you don't make the rules."

"Let's say I go to a bar and buy a beer. I pay for it. Now I own that beer. A pal comes in, and for some reason I'm suddenly not thirsty anymore. I offer my beer to my pal. Can the bartender grab it back and sell it to somebody else?"

"I don't know what you're talking about," the cop replied. "Now please get away from me."

"Do you have a brother who works in the post office?"

The cop looked so grim that I decided to take his advice and leave. I even forgot to buy the mailbox.

Late that afternoon I was on the phone to a local hospital administrator, trying to get to the bottom of why they add a 6 percent sales tax and an 11 percent gross earnings tax, whatever that is, to the bills of hospital patients. It was a very unsatisfactory conversation, and we will not be friends.

I hung up and told my wife I thought sick taxes are almost as bad as death taxes. "A person works hard all his life, pays his taxes, manages to save a little. Then he dies and the government says, 'Oh, Jones died? What did he have left? We'll just take a nice chunk of that.'" I fixed myself a drink and said, "I'd like to call up and complain, but I don't know who to complain to."

"Good," said my wife.

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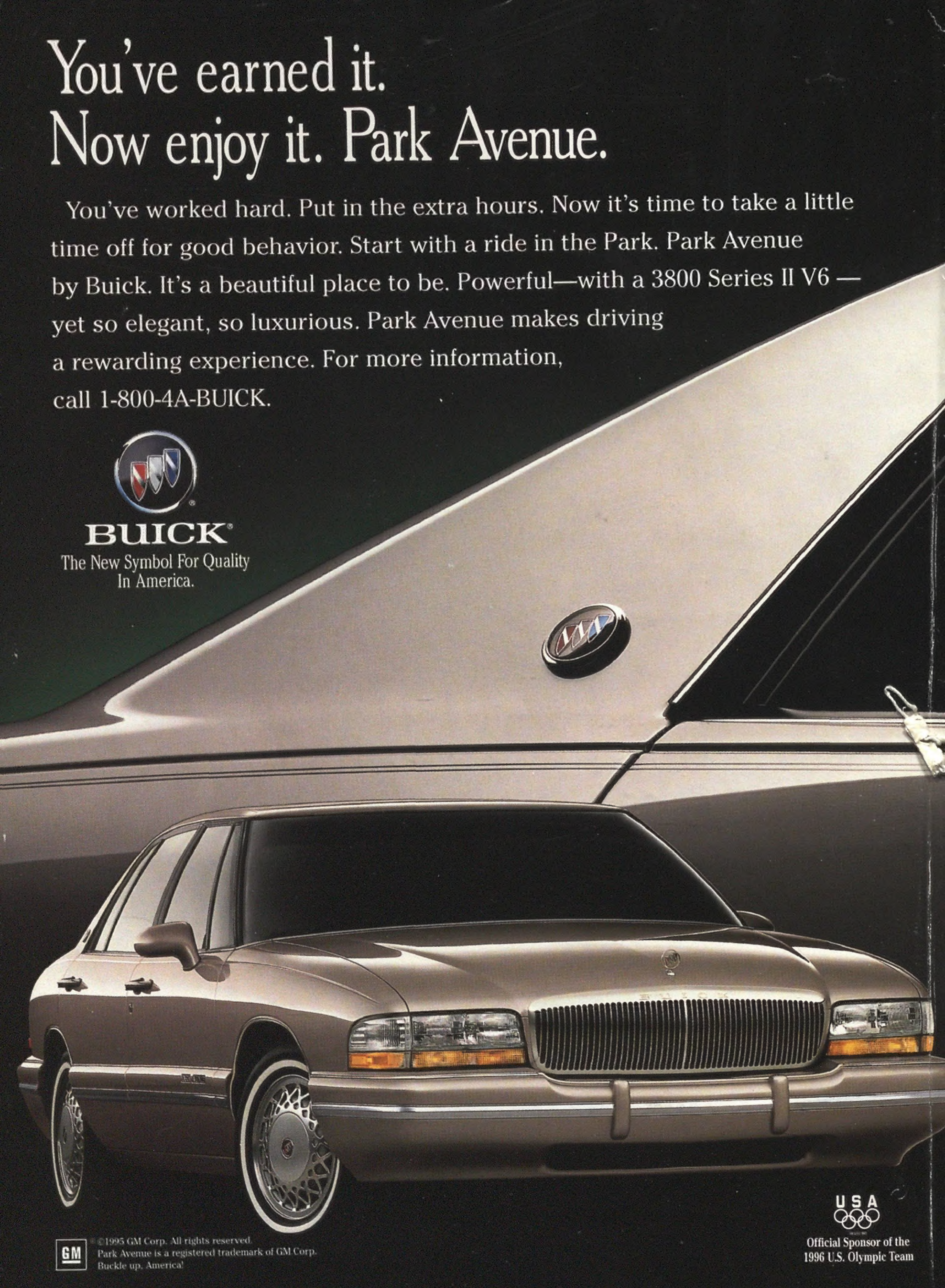

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